Final Report

15- Day Pre-Permit Construction PTC Application

Treasure Valley Forest Products Yamhill Facility

Prepared for

Treasure Valley Forest Products

April 2007

CH2MHILL

CH2MHILL TRANSMITTAL

To: Idaho Department of Environmental Quality
1410 N. Hilton
Boise, ID 83706

From: Rick McCormick

Attn: Bill Rogers

Date: April 17, 2007

Re: Treasure Valley Forest Products – 15-Day PTC Application

We Are Sending You:

X	Attached	Under separate cover via	
	Shop Drawings	Documents	Tracings
	Prints	Specifications	Catalogs
	Copy of letter	Other:	

Quantity	Description
1	15-Day PTC Application (CD included w/modeling files and emission calculations)
	$1,000 Application Fee Included — I didn't see one. Patti H:

If material received is not as listed, please notify us at once

Remarks:

RECEIVED
APR 18 2007
DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE A Q PROGRAM

Copy To:

Rick Brennaman, Lodge Logs

DE/AFS/SF

Final Report

15- Day Pre-Permit Construction PTC Application

Treasure Valley Forest Products Yamhill Facility

Prepared for

Treasure Valley Forest Products

April 2007

CH2MHILL

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1.0 Introduction

On behalf of Treasure Valley Forest Products (TVFP), CH2M HILL is requesting a 15-day Permit to Construct (PTC) for the TVFP Yamhill Facility in Boise, Idaho. The facility is located at 1625 Yamhill Road, just west of Federal Way and approximately ½ mile north of Gowen Road in the southeastern portion of Boise City in Ada County. This application follows the requirements for Pre-Permit Construction in accordance with the *Rules for the Control of Air Pollution in Idaho* (IDAPA) 58.01.01.213.02.

TVFP operates multiple wood product emission generating sources at its Yamhill facility. For this project, TVFP proposes to construct a C-Frame Sawmill at the site. This pre-permit construction and PTC application includes a process description, plot plan, process flow diagram, emission estimates, modeling protocol and results, and regulatory review.

A pre-permit application meeting about this project was held with the Idaho Department of Environmental Quality (DEQ) on December 20, 2006.

An application fee has been included with the application submittal in accordance with IDAPA 58.01.01.226.

A copy of the public announcement is included in Appendix A. DEQ permit application forms are provided in Appendix B.

2.0, 3.0, 4.0 Process Description, Scaled Plot Plan, Process Flow Diagram

A scaled plot plan is provided in Figure 1. The facility includes several buildings situated on an 18 acre lot. There is no significantly elevated terrain in the near vicinity of the proposed facility.

The process description and process flow diagrams are provided in Appendix C.

5.0 Potential to Emit Emission Estimates

Emission estimates were calculated based on emission factors derived from the United States Environmental Protection Agency (US EPA) *Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume 1: Stationary Point and Area Sources,*[1] manufacturer emission factors and the IDEQ Emission Factor Guide for Wood Industry (1/1997). Emission estimates, assumptions, and manufacturer references are provided in Appendix D.

6.0 Facility Classification

The Yamhill facility is not classified as a major source as defined in IDAPA 58.01.01, Section 008.10. The facility emits less than 100 tons per year of any regulated pollutant or combined

[1] Obtained from EPA website September 2006.

volatile organic compounds. The site is a minor source for Hazardous Air Pollutants (HAP) with total potential aggregate HAP emissions of less than 25 tons per year and emissions of any single HAP of less than 10 tons per year. The Yamhill facility is not a listed facility in 40 CFR Part 52 (100 tons per year threshold) and is not otherwise subject to Part 52 New Source Review (PSD) requirements due to potential emissions less than the 250 tons per year PSD threshold.

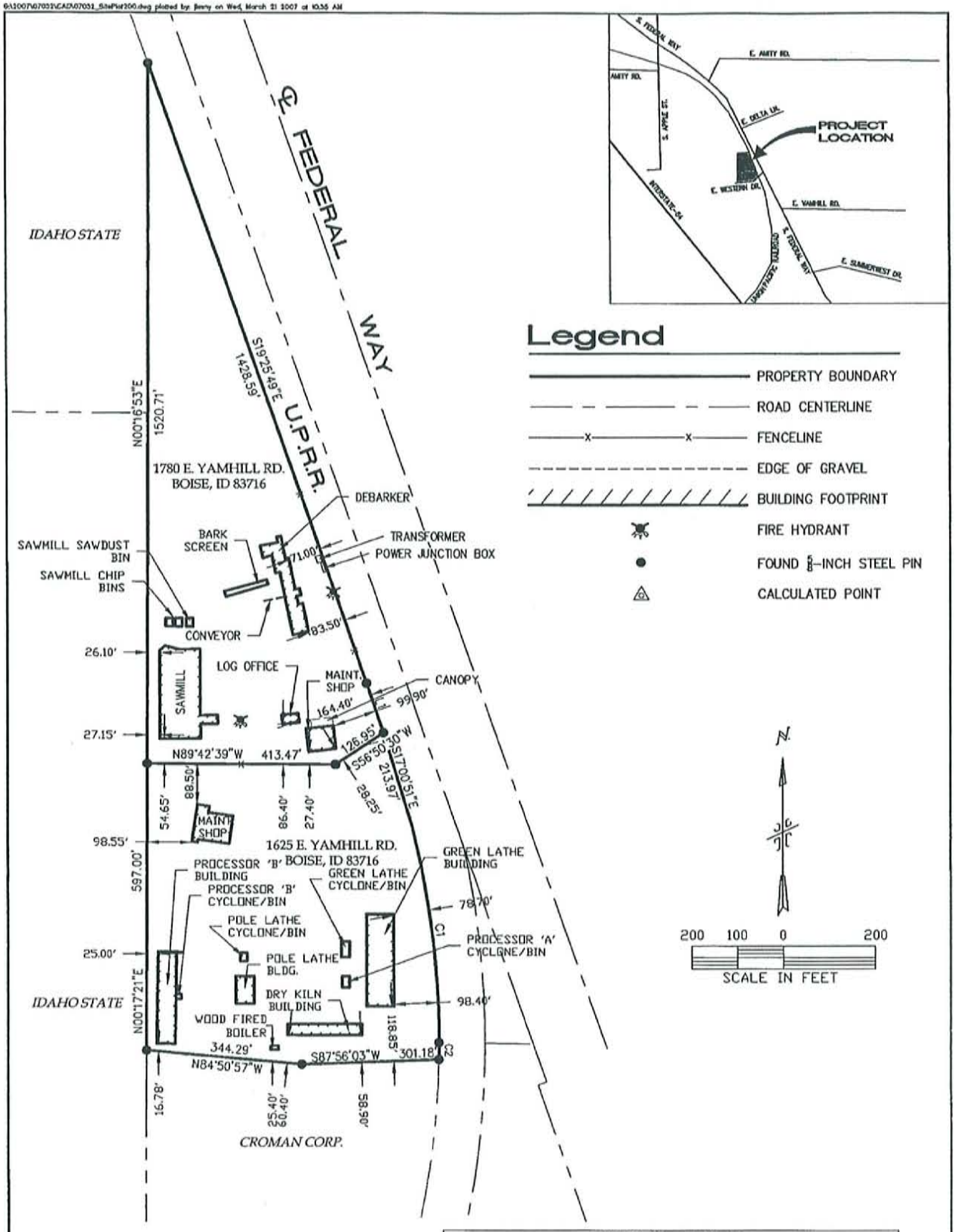
7.0 Ambient Impact Analysis

An air dispersion modeling protocol was prepared by CH2M HILL and submitted to IDEQ on February 14, 2007. The source parameters and modeling assumptions were identified within the modeling protocol. The protocol was approved via e-mail by DEQ on March 21, 2007. The air dispersion modeling protocol and IDEQ approval are included in Appendix E. Modeling assumptions and results are detailed in a modeling report included in Appendix F.

8.0 Applicable Requirements

A regulatory analysis was performed for the Yamhill facility to determine the applicability of the state and federal air quality regulations. The regulatory applicability determinations are included in Appendix G.

Figure 1 – Plot Plan



CURVE TABLE					
CURVE	LENGTH	RADIUS	DELTA	CHORD BRG	CHORD
C1	473.57'	1856.33'	14°37'01"	S07°09'31"E	472.29'
C2	37.00'	1856.33'	1°08'32"	S00°43'13"W	37.00'

LINE TABLE		
LINE	LENGTH	BEARING
L1	112.39	S19°14'29"E

1 of 1

SITE PLOT PLAN
LODGE LOGS
1780 YAMHILL RD., ID, 83705

Appendix A

Public Meeting Announcement

Idaho Statesman, April 16, 2007

LEGAL NOTICE
Public Meeting Announcement
Treasure Valley Forest Products
- Pre-Permit Construction

An informational meeting will be held at the Lodge Logs office located at 7789 S. Federal Way in Boise, Idaho from 4 to 5 PM on Monday April 23, 2007 in accordance with the Rules for the Control of Air Pollution in Idaho, Idaho Administrative Code, IDAPA 58.01.01.213.02 – Permit to Construct Procedures For Pre-Permit Construction.

The purpose of the meeting is to inform the general public of Treasure Valley Forest Products' request to produce lumber and manufacture logs. For this project, Treasure Valley Forest Products proposes to construct a C-Frame Sawmill at the site. In addition, this meeting will serve to fulfill the air quality pre-permit construction requirement per IDAPA 58.01.01.213.02.

The Yamhill facility receives green logs of primarily lodgepole pine for processing. The green logs are debarked, cut to the desired length, and roughly sized to the desired diameter. The logs are then moved by heavy equipment to either a C-Frame Sawmill to produce lumber or a green lathe building to notch the logs. Lumber and notched logs are moved by heaving equipment to the drying kilns. The drying kiln consists of a 2000 square foot building heated to 130°F with steam radiators. The steam is produced in a wood-fired boiler.

Pub. Apr. 16, 2007 28650

Appendix B

IDEQ Application Forms

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 1
01/11/07

Please see instructions on page 2 before filling out the form.

All information is required. If information is missing, the application will not be processed.

IDENTIFICATION	
1. Company Name	Treasure Valley Forest Products
2. Facility Name (if different than #1)	Treasure Valley Forest Products Yamhill
3. Facility I.D. No.	
4. Brief Project Description:	Install a sawmill.
FACILITY INFORMATION	
5. Owned/operated by: (√ if applicable)	☐ Federal government ☐ County government ☐ State government ☐ City government
6. Primary Facility Permit Contact Person/Title	Rick Brenneman e-mail RBRENNEMAN@LodgeLogs.com.
7. Telephone Number and Email Address	208.336.2450
8. Alternate Facility Contact Person/Title	DAN BALBACH
9. Telephone Number and Email Address	
10. Address to which permit should be sent	7789 S. Federal Way
11. City/State/Zip	Boise, Idaho 83716
12. Equipment Location Address (if different than #9)	1625 Yamhill Road
13. City/State/Zip	Boise, Idaho 83716
14. Is the Equipment Portable?	☐ Yes ☒ No
15. SIC Code(s) and NAISC Code	Primary SIC: 2452 Secondary SIC (if any): NAICS: 321992
16. Brief Business Description and Principal Product	Debarking, sorting, drying and shaving of logs for log homes.
17. Identify any adjacent or contiguous facility that this company owns and/or operates	
PERMIT APPLICATION TYPE	
18. Specify Reason for Application	☐ New Facility ☒ New Source at Existing Facility ☐ Modify Existing Source: Permit No.:____ Date Issued: ____ ☐ Unpermitted Existing Source: ☐ Required by Enforcement Action: Case No.:____
CERTIFICATION	
IN ACCORDANCE WITH IDAPA 58.01.01.123 (RULES FOR THE CONTROL OF AIR POLLUTION IN IDAHO), I CERTIFY BASED ON INFORMATION AND BELIEF FORMED AFTER REASONABLE INQUIRY, THE STATEMENTS AND INFORMATION IN THE DOCUMENT ARE TRUE, ACCURATE, AND COMPLETE.	
19. Responsible Official's Name/Title	Dan Balbach/Owner
20. RESPONSIBLE OFFICIAL SIGNATURE	Dan Balbach Date: 4/13/07
21. ☒ Check here to indicate you would like to review a draft permit prior to final issuance.	

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Please see instructions on page 2 before filling out the form.

COMPANY NAME, FACILITY NAME, AND FACILITY ID NUMBER

1. Company Name	Treasure Valley Forest Products	
2. Facility Name	Treasure Valley Forest Products -Yamhill	3. Facility ID No.
4. Brief Project Description - One sentence or less	The facility is proposing to install a sawmill.	

PERMIT APPLICATION TYPE

5. ☐ New Facility ☒ New Source at Existing Facility ☐ Unpermitted Existing Source
☐ Modify Existing Source: Permit No.:_____ Date Issued:
☐ Required by Enforcement Action: Case No.:

6. ☒ Minor PTC ☐ Major PTC

FORMS INCLUDED

Included	N/A	Forms	DEQ Verify
☒	☐	Form GI – Facility Information	☐
☒	☐	Form EU0 – Emissions Units General	☐
☐	☐	Form EU1 - Industrial Engine Information Please Specify number of forms attached: _____	☐
☐	☐	Form EU2 - Nonmetallic Mineral Processing Plants Please Specify number of forms attached: _____	☐
☐	☐	Form EU3 - Spray Paint Booth Information Please Specify number of forms attached: _____	☐
☐	☐	Form EU4 - Cooling Tower Information Please Specify number of forms attached: _____	☐
☒	☐	Form EU5 – Boiler Information Please Specify number of forms attached: 1_____	☐
☐	☐	Form HMAP – Hot Mix Asphalt Plant Please Specify number of forms attached: _____	☐
☐	☐	Form CBP - Concrete Batch Plant Please Specify number of forms attached: _____	☐
☐	☐	Form BCE - Baghouses Control Equipment	☐
☐	☐	Form SCE - Scrubbers Control Equipment	☐
☒	☐	Forms EI-CP1 - EI-CP4 - Emissions Inventory– criteria pollutants (Excel workbook, all 4 worksheets)	☐
☒	☐	PP – Plot Plan	☐
☒	☐	Forms MI1 – MI4 – Modeling (Excel workbook, all 4 worksheets)	☐
☒	☐	Form FRA – Federal Regulation Applicability	☐

DEQ USE ONLY

Date Received

RECEIVED
APR 18 2007
DEPARTMENT OF ENVIRONMENTAL QUALITY

Project Number

Payment / Fees Included?
Yes ☐ No ☑

Check Number

Emissions Unit - General **Form EU0**

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PERMIT TO CONSTRUCT APPLICATION

Revision 1
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Please see instructions on page 2 before filling out the form.

IDENTIFICATION

Company Name:	Facility Name:	Facility ID No:
Treasure Valley Forest Products	Treasure Valley Forest Products - Yamhill	
Brief Project Description:	Install sawmill	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

1. Emissions Unit (EU) Name:	Debarker/Sorter
2. EU ID Number:	DEB
3. EU Type:	☐ New Source ☒ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
4. Manufacturer:	
5. Model:	
6. Maximum Capacity:	13,000,000 board feet per year
7. Date of Construction:	1993
8. Date of Modification (if any)	NA
9. Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, Complete the following section. If No, go to line 18.

EMISSIONS CONTROL EQUIPMENT

10. Control Equipment Name and ID:			
11. Date of Installation:		12. Date of Modification (if any):	
13. Manufacturer and Model Number:			
14. ID(s) of Emission Unit Controlled:			
15. Is operating schedule different than emission units(s) involved?:	☐ Yes ☐ No		
16. Does the manufacturer guarantee the control efficiency of the control equipment?	☐Yes ☐No (If yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

17. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

18. Actual Operation	2,080 hours/year
19. Maximum Operation	8,760 hours/year

REQUESTED LIMITS

20. Are you requesting any permit limits?	☐ Yes ☒ No (If Yes, check all that apply below)
☐ Operation Hour Limit(s):	
☐ Production Limit(s):	
☐ Material Usage Limit(s):	
☐ Limits Based on Stack Testing	Please attach all relevant stack testing summary reports
☐ Other:	
21. Rationale for Requesting the Limit(s):	

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PERMIT TO CONSTRUCT APPLICATION

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01/11/07

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IDENTIFICATION

Company Name:	Facility Name:	Facility ID No:
Treasure Valley Forest Products	Treasure Valley Forest Products - Yamhill	
Brief Project Description:	Install sawmill	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

1. Emissions Unit (EU) Name:	Debarker/Sorter Screen
2. EU ID Number:	DEBS
3. EU Type:	☐ New Source ☒ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
4. Manufacturer:	
5. Model:	
6. Maximum Capacity:	13,000,000 board feet per year
7. Date of Construction:	1993
8. Date of Modification (if any)	NA
9. Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, Complete the following section. If No, go to line 18.

EMISSIONS CONTROL EQUIPMENT

10. Control Equipment Name and ID:			
11. Date of Installation:		12. Date of Modification (if any):	
13. Manufacturer and Model Number:			
14. ID(s) of Emission Unit Controlled:			
15. Is operating schedule different than emission units(s) involved?:	☐ Yes ☐ No		
16. Does the manufacturer guarantee the control efficiency of the control equipment?	☐Yes ☐No (If yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

17. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

18. Actual Operation	2,080 hours/year
19. Maximum Operation	8,760 hours/year

REQUESTED LIMITS

20. Are you requesting any permit limits?	☐ Yes ☒ No (If Yes, check all that apply below)
☐ Operation Hour Limit(s):	
☐ Production Limit(s):	
☐ Material Usage Limit(s):	
☐ Limits Based on Stack Testing	Please attach all relevant stack testing summary reports
☐ Other:	
21. Rationale for Requesting the Limit(s):	

Emissions Unit - General **Form EU0**

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IDENTIFICATION

Company Name:	Facility Name:	Facility ID No:
Treasure Valley Forest Products	Treasure Valley Forest Products - Yamhill	
Brief Project Description:	Install sawmill	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

1. Emissions Unit (EU) Name:	Drying Kiln
2. EU ID Number:	KILN
3. EU Type:	☐ New Source ☒ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
4. Manufacturer:	
5. Model:	
6. Maximum Capacity:	1,000,000 board feet per year
7. Date of Construction:	1993
8. Date of Modification (if any)	NA
9. Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, Complete the following section. If No, go to line 18.

EMISSIONS CONTROL EQUIPMENT

10. Control Equipment Name and ID:			
11. Date of Installation:		12. Date of Modification (if any):	
13. Manufacturer and Model Number:			
14. ID(s) of Emission Unit Controlled:			
15. Is operating schedule different than emission units(s) involved?:	☐ Yes ☐ No		
16. Does the manufacturer guarantee the control efficiency of the control equipment?	☐Yes ☐No (If yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

17. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

18. Actual Operation	8,760 hours/year
19. Maximum Operation	8,760 hours/year

REQUESTED LIMITS

20. Are you requesting any permit limits?	☐ Yes ☒ No (If Yes, check all that apply below)
☐ Operation Hour Limit(s):	
☐ Production Limit(s):	
☐ Material Usage Limit(s):	
☐ Limits Based on Stack Testing	Please attach all relevant stack testing summary reports
☐ Other:	
21. Rationale for Requesting the Limit(s):	

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IDENTIFICATION

Company Name:	Facility Name:	Facility ID No:
Treasure Valley Forest Products	Treasure Valley Forest Products - Yamhill	
Brief Project Description:	Install sawmill	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

1. Emissions Unit (EU) Name:	Green Lathe Cyclone
2. EU ID Number:	GCYCL
3. EU Type:	☐ New Source ☒ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
4. Manufacturer:	
5. Model:	
6. Maximum Capacity:	10,264 tons dry wood per year
7. Date of Construction:	1993
8. Date of Modification (if any)	NA
9. Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, Complete the following section. If No, go to line 18.

EMISSIONS CONTROL EQUIPMENT

10. Control Equipment Name and ID:			
11. Date of Installation:		12. Date of Modification (if any):	
13. Manufacturer and Model Number:			
14. ID(s) of Emission Unit Controlled:			
15. Is operating schedule different than emission units(s) involved?:	☐ Yes ☐ No		
16. Does the manufacturer guarantee the control efficiency of the control equipment?	☐Yes ☐No (If yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

17. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

18. Actual Operation	2,080 hours/year
19. Maximum Operation	8,760 hours/year

REQUESTED LIMITS

20. Are you requesting any permit limits?	☐ Yes ☒ No (If Yes, check all that apply below)
☐ Operation Hour Limit(s):	
☐ Production Limit(s):	
☐ Material Usage Limit(s):	
☐ Limits Based on Stack Testing	Please attach all relevant stack testing summary reports
☐ Other:	
21. Rationale for Requesting the Limit(s):	

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Treasure Valley Forest Products	Treasure Valley Forest Products - Yamhill	
Brief Project Description:	Install sawmill	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

1. Emissions Unit (EU) Name:	Green Lathe Cyclone Bin
2. EU ID Number:	GBIN
3. EU Type:	☐ New Source ☒ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
4. Manufacturer:	
5. Model:	
6. Maximum Capacity:	10,264 tons dry wood per year
7. Date of Construction:	1993
8. Date of Modification (if any)	NA
9. Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, Complete the following section. If No, go to line 18.

EMISSIONS CONTROL EQUIPMENT

10. Control Equipment Name and ID:			
11. Date of Installation:		12. Date of Modification (if any):	
13. Manufacturer and Model Number:			
14. ID(s) of Emission Unit Controlled:			
15. Is operating schedule different than emission units(s) involved?:	☐ Yes ☐ No		
16. Does the manufacturer guarantee the control efficiency of the control equipment?	☐Yes ☐No (If yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
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18. Actual Operation	2,080 hours/year
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☐ Operation Hour Limit(s):	
☐ Production Limit(s):	
☐ Material Usage Limit(s):	
☐ Limits Based on Stack Testing	Please attach all relevant stack testing summary reports
☐ Other:	
21. Rationale for Requesting the Limit(s):	

Emissions Unit - General **Form EU0**

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Treasure Valley Forest Products	Treasure Valley Forest Products - Yamhill	
Brief Project Description:	Install sawmill	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

1. Emissions Unit (EU) Name:	Processor A Cyclone
2. EU ID Number:	ACYCL
3. EU Type:	☐ New Source ☒ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
4. Manufacturer:	
5. Model:	
6. Maximum Capacity:	1,026 dry tons wood per year
7. Date of Construction:	1993
8. Date of Modification (if any)	NA
9. Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, Complete the following section. If No, go to line 18.

EMISSIONS CONTROL EQUIPMENT

10. Control Equipment Name and ID:			
11. Date of Installation:		12. Date of Modification (if any):	
13. Manufacturer and Model Number:			
14. ID(s) of Emission Unit Controlled:			
15. Is operating schedule different than emission units(s) involved?:	☐ Yes ☐ No		
16. Does the manufacturer guarantee the control efficiency of the control equipment?	☐Yes ☐No (If yes, attach and label manufacturer guarantee)		

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☐ Material Usage Limit(s):	
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☐ Other:	
21. Rationale for Requesting the Limit(s):	

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Treasure Valley Forest Products	Treasure Valley Forest Products - Yamhill	
Brief Project Description:	Install sawmill	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

1. Emissions Unit (EU) Name:	Processor A Cyclone Bin
2. EU ID Number:	ABIN
3. EU Type:	☐ New Source ☒ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
4. Manufacturer:	
5. Model:	
6. Maximum Capacity:	1,026 dry tons wood per year
7. Date of Construction:	1993
8. Date of Modification (if any)	NA
9. Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, Complete the following section. If No, go to line 18.

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☐ Material Usage Limit(s):	
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2. EU ID Number:	BCYCL
3. EU Type:	☐ New Source ☒ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
4. Manufacturer:	
5. Model:	
6. Maximum Capacity:	153 ton dry wood per year
7. Date of Construction:	1993
8. Date of Modification (if any)	NA
9. Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, Complete the following section. If No, go to line 18.

EMISSIONS CONTROL EQUIPMENT

10. Control Equipment Name and ID:			
11. Date of Installation:		12. Date of Modification (if any):	
13. Manufacturer and Model Number:			
14. ID(s) of Emission Unit Controlled:			
15. Is operating schedule different than emission units(s) involved?:	☐ Yes ☐ No		
16. Does the manufacturer guarantee the control efficiency of the control equipment?	☐Yes ☐No (If yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

17. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

18. Actual Operation	2,080 hours/year
19. Maximum Operation	8,760 hours/year

REQUESTED LIMITS

20. Are you requesting any permit limits?	☐ Yes ☒ No (If Yes, check all that apply below)
☐ Operation Hour Limit(s):	
☐ Production Limit(s):	
☐ Material Usage Limit(s):	
☐ Limits Based on Stack Testing	Please attach all relevant stack testing summary reports
☐ Other:	
21. Rationale for Requesting the Limit(s):	

Emissions Unit - General **Form EU0**

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 1
01/11/07

Please see instructions on page 2 before filling out the form.

IDENTIFICATION

Company Name:	Facility Name:	Facility ID No:
Treasure Valley Forest Products	Treasure Valley Forest Products - Yamhill	
Brief Project Description:	Install sawmill	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

1. Emissions Unit (EU) Name:	Processor B Cyclone Bin
2. EU ID Number:	BBIN
3. EU Type:	☐ New Source ☒ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
4. Manufacturer:	
5. Model:	
6. Maximum Capacity:	153 ton dry wood per year
7. Date of Construction:	1993
8. Date of Modification (if any)	NA
9. Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, Complete the following section. If No, go to line 18.

EMISSIONS CONTROL EQUIPMENT

10. Control Equipment Name and ID:			
11. Date of Installation:		12. Date of Modification (if any):	
13. Manufacturer and Model Number:			
14. ID(s) of Emission Unit Controlled:			
15. Is operating schedule different than emission units(s) involved?:	☐ Yes ☐ No		
16. Does the manufacturer guarantee the control efficiency of the control equipment?	☐Yes ☐No (If yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

17. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

18. Actual Operation	2,080 hours/year
19. Maximum Operation	8,760 hours/year

REQUESTED LIMITS

20. Are you requesting any permit limits?	☐ Yes ☒ No (If Yes, check all that apply below)
☐ Operation Hour Limit(s):	
☐ Production Limit(s):	
☐ Material Usage Limit(s):	
☐ Limits Based on Stack Testing	Please attach all relevant stack testing summary reports
☐ Other:	
21. Rationale for Requesting the Limit(s):	

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PERMIT TO CONSTRUCT APPLICATION

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01/11/07

Please see instructions on page 2 before filling out the form.

IDENTIFICATION

Company Name:	Facility Name:	Facility ID No:
Treasure Valley Forest Products	Treasure Valley Forest Products - Yamhill	
Brief Project Description:	Install sawmill	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

1. Emissions Unit (EU) Name:	Pole Lathe Cyclone
2. EU ID Number:	PCYCL
3. EU Type:	☐ New Source ☒ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
4. Manufacturer:	
5. Model:	
6. Maximum Capacity:	998 tons dry wood per year
7. Date of Construction:	1993
8. Date of Modification (if any)	NA
9. Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, Complete the following section. If No, go to line 18.

EMISSIONS CONTROL EQUIPMENT

10. Control Equipment Name and ID:			
11. Date of Installation:		12. Date of Modification (if any):	
13. Manufacturer and Model Number:			
14. ID(s) of Emission Unit Controlled:			
15. Is operating schedule different than emission units(s) involved?:	☐ Yes ☐ No		
16. Does the manufacturer guarantee the control efficiency of the control equipment?	☐Yes ☐No (If yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

17. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

18. Actual Operation	2,080 hours/year
19. Maximum Operation	8,760 hours/year

REQUESTED LIMITS

20. Are you requesting any permit limits?	☐ Yes ☒ No (If Yes, check all that apply below)
☐ Operation Hour Limit(s):	
☐ Production Limit(s):	
☐ Material Usage Limit(s):	
☐ Limits Based on Stack Testing	Please attach all relevant stack testing summary reports
☐ Other:	
21. Rationale for Requesting the Limit(s):	

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PERMIT TO CONSTRUCT APPLICATION

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Please see instructions on page 2 before filling out the form.

IDENTIFICATION

Company Name:	Facility Name:	Facility ID No:
Treasure Valley Forest Products	Treasure Valley Forest Products - Yamhill	
Brief Project Description:	Install sawmill	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

1. Emissions Unit (EU) Name:	Pole Lathe Cyclone Bin
2. EU ID Number:	PBIN
3. EU Type:	☐ New Source ☒ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
4. Manufacturer:	
5. Model:	
6. Maximum Capacity:	998 tons dry wood per year
7. Date of Construction:	1993
8. Date of Modification (if any)	NA
9. Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, Complete the following section. If No, go to line 18.

EMISSIONS CONTROL EQUIPMENT

10. Control Equipment Name and ID:			
11. Date of Installation:		12. Date of Modification (if any):	
13. Manufacturer and Model Number:			
14. ID(s) of Emission Unit Controlled:			
15. Is operating schedule different than emission units(s) involved?:	☐ Yes ☐ No		
16. Does the manufacturer guarantee the control efficiency of the control equipment?	☐Yes ☐No (If yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

17. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

18. Actual Operation	2,080 hours/year
19. Maximum Operation	8,760 hours/year

REQUESTED LIMITS

20. Are you requesting any permit limits?	☐ Yes ☒ No (If Yes, check all that apply below)
☐ Operation Hour Limit(s):	
☐ Production Limit(s):	
☐ Material Usage Limit(s):	
☐ Limits Based on Stack Testing	Please attach all relevant stack testing summary reports
☐ Other:	
21. Rationale for Requesting the Limit(s):	

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PERMIT TO CONSTRUCT APPLICATION

Revision 1
01/11/07

Please see instructions on page 2 before filling out the form.

IDENTIFICATION

Company Name:	Facility Name:	Facility ID No:
Treasure Valley Forest Products	Treasure Valley Forest Products - Yamhill	
Brief Project Description:	Install sawmill	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

1. Emissions Unit (EU) Name:	Sawmill
2. EU ID Number:	SAW
3. EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
4. Manufacturer:	
5. Model:	
6. Maximum Capacity:	12,000,000 board feet per year
7. Date of Construction:	2007
8. Date of Modification (if any)	NA
9. Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, Complete the following section. If No, go to line 18.

EMISSIONS CONTROL EQUIPMENT

10. Control Equipment Name and ID:			
11. Date of Installation:		12. Date of Modification (if any):	
13. Manufacturer and Model Number:			
14. ID(s) of Emission Unit Controlled:			
15. Is operating schedule different than emission units(s) involved?:	☐ Yes ☐ No		
16. Does the manufacturer guarantee the control efficiency of the control equipment?	☐Yes ☐No (If yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

17. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

18. Actual Operation	2,080 hours/year
19. Maximum Operation	8,760 hours/year

REQUESTED LIMITS

20. Are you requesting any permit limits?	☐ Yes ☒ No (If Yes, check all that apply below)
☐ Operation Hour Limit(s):	
☐ Production Limit(s):	
☐ Material Usage Limit(s):	
☐ Limits Based on Stack Testing	Please attach all relevant stack testing summary reports
☐ Other:	
21. Rationale for Requesting the Limit(s):	

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PERMIT TO CONSTRUCT APPLICATION

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IDENTIFICATION

Company Name:	Facility Name:	Facility ID No:
Treasure Valley Forest Products	Treasure Valley Forest Products - Yamhill	
Brief Project Description:	Install sawmill	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

1. Emissions Unit (EU) Name:	Sawmill sawdust bin
2. EU ID Number:	SBIN
3. EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
4. Manufacturer:	Peerless Division of Royal Industries
5. Model:	
6. Maximum Capacity:	1,796 tons dry wood per year
7. Date of Construction:	2007
8. Date of Modification (if any)	NA
9. Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, Complete the following section. If No, go to line 18.

EMISSIONS CONTROL EQUIPMENT

10. Control Equipment Name and ID:			
11. Date of Installation:		12. Date of Modification (if any):	
13. Manufacturer and Model Number:			
14. ID(s) of Emission Unit Controlled:			
15. Is operating schedule different than emission units(s) involved?:	☐ Yes ☐ No		
16. Does the manufacturer guarantee the control efficiency of the control equipment?	☐Yes ☐No (If yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

17. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

18. Actual Operation	2,080 hours/year
19. Maximum Operation	8,760 hours/year

REQUESTED LIMITS

20. Are you requesting any permit limits?	☐ Yes ☒ No (If Yes, check all that apply below)
☐ Operation Hour Limit(s):	
☐ Production Limit(s):	
☐ Material Usage Limit(s):	
☐ Limits Based on Stack Testing	Please attach all relevant stack testing summary reports
☐ Other:	
21. Rationale for Requesting the Limit(s):	

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PERMIT TO CONSTRUCT APPLICATION

Revision 1
01/11/07

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IDENTIFICATION		
Company Name: Treasure Valley Forest Products	Facility Name: Treasure Valley Forest Products Yamhill	Facility ID No:
Brief Project Description:	Install sawmill	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION	
1. Emissions Unit (EU) Name:	Sawmill chip bin 1
2. EU ID Number:	WBIN1
3. EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
4. Manufacturer:	Peerless Division of Royal Industries
5. Model:	
6. Maximum Capacity:	3,849 tons dry wood per year
7. Date of Construction:	2007
8. Date of Modification (if any)	NA
9. Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, Complete the following section. If No, go to line 18.

EMISSIONS CONTROL EQUIPMENT			
10. Control Equipment Name and ID:			
11. Date of Installation:		12. Date of Modification (if any):	
13. Manufacturer and Model Number:			
14. ID(s) of Emission Unit Controlled:			
15. Is operating schedule different than emission units(s) involved?:	☐ Yes ☐ No		
16. Does the manufacturer guarantee the control efficiency of the control equipment?	☐Yes ☐No (If yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

17. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)	
18. Actual Operation	2,080 hours/year
19. Maximum Operation	8,760 hours/year

REQUESTED LIMITS	
20. Are you requesting any permit limits?	☐ Yes ☒ No (If Yes, check all that apply below)
☐ Operation Hour Limit(s):	
☐ Production Limit(s):	
☐ Material Usage Limit(s):	
☐ Limits Based on Stack Testing	Please attach all relevant stack testing summary reports
☐ Other:	
21. Rationale for Requesting the Limit(s):	

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PERMIT TO CONSTRUCT APPLICATION

Revision 1
01/11/07

Please see instructions on page 2 before filling out the form.

IDENTIFICATION

Company Name:	Facility Name:	Facility ID No:
Treasure Valley Forest Products	Treasure Valley Forest Products Yamhill	
Brief Project Description:	Install sawmill	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

1. Emissions Unit (EU) Name:	Sawmill chip bin 2
2. EU ID Number:	WBIN2
3. EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
4. Manufacturer:	Peerless Division of Royal Industries
5. Model:	
6. Maximum Capacity:	3,849 tons dry wood per year
7. Date of Construction:	2007
8. Date of Modification (if any)	NA
9. Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, Complete the following section. If No, go to line 18.

EMISSIONS CONTROL EQUIPMENT

10. Control Equipment Name and ID:			
11. Date of Installation:		12. Date of Modification (if any):	
13. Manufacturer and Model Number:			
14. ID(s) of Emission Unit Controlled:			
15. Is operating schedule different than emission units(s) involved?:	☐ Yes ☐ No		
16. Does the manufacturer guarantee the control efficiency of the control equipment?	☐Yes ☐No (If yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

17. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

18. Actual Operation	2,080 hours/year
19. Maximum Operation	8,760 hours/year

REQUESTED LIMITS

20. Are you requesting any permit limits?	☐ Yes ☒ No (If Yes, check all that apply below)
☐ Operation Hour Limit(s):	
☐ Production Limit(s):	
☐ Material Usage Limit(s):	
☐ Limits Based on Stack Testing	Please attach all relevant stack testing summary reports
☐ Other:	
21. Rationale for Requesting the Limit(s):	

DEQ AIR QUALITY PROGRAM
1410 N. Hilton
Boise, ID 83706
For assistance: (208) 373-0502

PERMIT TO CONSTRUCT APPLICATION

Company Name:	Treasure Valley Forest Products
Facility Name:	Treasure Valley Forest Products - Yamhill
Facility ID No.:	
Brief Project Description:	Install Sawmill

SUMMARY OF FACILITY WIDE EMISSION RATES FOR CRITERIA POLLUTANTS - POINT SOURCES

		3.											
1.	2.	PM_{10}		SO_2		NO_X		CO		VOC		Lead	
Emissions units	Stack ID	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Point Source(s)													
Wood-Fired Boiler	BOILER	0.10	0.30	0.25	0.04	0.25	0.76	0.30	0.94	0.01	0.03	0.00	0.00
Green Lathe Cyclone	GCYCL	1.23	1.28										
Processor A Cyclone	ACYCL	0.12	0.13										
Processor B Cyclone	BCYCL	0.02	0.02										
Pole Lathe Cyclone	PCYCL	0.12	0.12										
name of the emissions unit6													
name of the emissions unit7													
name of the emissions unit8													
name of the emissions unit9													
name of the emissions unit10													
name of the emissions unit11													
name of the emissions unit12													
name of the emissions unit13													
name of the emissions unit14													
name of the emissions unit15													
name of the emissions unit16													
name of the emissions unit17													
name of the emissions unit18													
name of the emissions unit19													
name of the emissions unit20													
name of the emissions unit21													
(insert more rows as needed)													
Total		1.59	1.86	0.25	0.04	0.25	0.76	0.30	0.94	0.01	0.03	0.00	0.00

DEQ AIR QUALITY PROGRAM
1410 N. Hilton
Boise, ID 83706
For assistance: (208) 373-0502

PERMIT TO CONSTRUCT APPLICATION

Company Name:	Treasure Valley Forest Products
Facility Name:	Treasure Valley Forest Products - Yamhill
Facility ID No.:	
Brief Project Description:	Install Sawmill

SUMMARY OF FACILITY WIDE EMISSION RATES FOR CRITERIA POLLUTANTS - FUGITIVE SOURCES

		3.											
1.	2.	PM_{10}		SO_2		NO_X		CO		VOC		Lead	
Fugitive Source Name	**Fugitive ID**	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Fugitive Source(s)													
Debarker	DEB	1.05	1.09										
Debarker Screen	DEBS	0.07	0.07										
Dry Kiln	KILN	0.01	0.00							6.88	21.45		
Sawmill	SAW	0.90	0.94										
Sawdust Pile	PILE	0.30	0.31										
Green Lathe Cyclone Loadout Bins	GBIN	0.00	0.00										
Processor A Cyclone Loadout Bin	ABIN	0.00	0.00										
Processor B Cyclone Loadout Bin	BBIN	0.00	0.00										
Pole Lathe Cyclone Loadout Bin	PBIN	0.00	0.00										
Sawmill Sawdust Loadout Bin	SBIN	0.00	0.00										
Sawmill Wood Chip Loadout Bin 1	WBIN1	0.00	0.00										
Sawmill Wood Chip Loadout Bin 2	WBIN2	0.00	0.00										
Name of Fugitive Source 13													
Name of Fugitive Source 14													
Name of Fugitive Source 15													
Name of Fugitive Source 16													
Name of Fugitive Source 17													
Name of Fugitive Source 18													
Name of Fugitive Source 19													
Name of Fugitive Source 20													
Name of Fugitive Source 21													
... (insert more rows as needed)													
Total		2.33	2.42							6.88	21.45		

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PERMIT TO CONSTRUCT APPLICATION

Revision 3
04/05/2007

Please see instructions on page 2 before filling out the form.

Company Name:	Treasure Valley Forest Products
Facility Name:	Treasure Valley Forest Products
Facility ID No.:	
Brief Project Description:	Install Sawmill

SUMMARY OF AIR IMPACT ANALYSIS RESULTS - CRITERIA POLLUTANTS

		1.		2.	3.	4.		5.
Criteria Pollutants	**Averaging Period**	**Significant Impact Analysis Results (µg/m3)**	**Significant Contribution Level (µg/m3)**	**Full Impact Analysis Results (µg/m3)**	**Background Concentration (µg/m3)**	**Total Ambient Impact (µg/m3)**	**NAAQS (µg/m3)**	**Percent of NAAQS**
PM_{10}	24-hour	22.42	5	58.84	84.00	142.84	150	95%
	Annual	1.90	1	4.03	27.00	31.03	50	62%
SO_2	3-hr	1.99	25		120.00		1300	
	24-hr	0.69	5		40.00		365	
	Annual	0.11	1		10.00		80	
NO_2	Annual	1.59	1	3.08	21.00	24.08	100	24%
CO	1-hr	82.94	2000		15,600.00		10000	
	8-hr	23.57	500		5,200.00		40000	

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Please see instructions on page 2 before filling out the form.

Company Name:	Treasure Valley Forest Products
Facility Name:	Treasure Valley Forest Products
Facility ID No.:	
Brief Project Description:	Install Sawmill

POINT SOURCE STACK PARAMETERS

1.	2.	3a.	3b.	4.	5.	6.	7.	8.	9.	10.
Emissions units	**Stack ID**	**UTM Easting (m)**	**UTM Northing (m)**	**Base Elevation (m)**	**Stack Height (m)**	**Modeled Diameter (m)**	**Stack Exit Temperature (K)**	**Stack Exit Flowrate (acfm)**	**Stack Exit Velocity (m/s)**	**Stack orientation (e.g., horizontal, rain cap)**
Point Source(s)										
Wood-Fired Boiler	BOILER				7.32	0.30	449.80		0.18	Vert
Green Lathe Cyclone	GCYCL				16.15	0.91	294.30		0.00	Horiz, rain cap
Processor A Cyclone	ACYCL				16.15	0.91	294.30		15.92	Vert
Processor B Cyclone	BCYCL				9.14	0.91	294.30		15.92	Vert
Pole Lathe Cyclone	PCYCL				16.15	0.91	294.30		0.00	Horiz, no rain cap
name of the emissions unit6										
name of the emissions unit7										
name of the emissions unit8										
name of the emissions unit9										
name of the emissions unit10										
name of the emissions unit11										
name of the emissions unit12										
name of the emissions unit13										
name of the emissions unit14										
name of the emissions unit15										
name of the emissions unit16										
name of the emissions unit17										
name of the emissions unit18										
name of the emissions unit19										
name of the emissions unit20										
name of the emissions unit21										
(insert more rows as needed)										

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Please see instructions on page 2 before filling out the form.

Company Name:	Treasure Valley Forest Products
Facility Name:	Treasure Valley Forest Products
Facility ID No.:	
Brief Project Description:	Install Sawmill

FUGITIVE SOURCE PARAMETERS

1.	2.	3a.	3b.	4.	5.	6.	7.	8.	9.	10.
Emissions units	Stack ID	UTM Easting (m)	UTM Northing (m)	Base Elevation (m)	Release Height (m)	Easterly Length (m)	Northerly Length (m)	Angle from North (°)	Initial Vertical Dimension (m)	Initial Horizontal Dimension (m)
Area Source(s)										
Continued Volume Sources:										
Sawmill Vent 1	SAWMILL1				15.24				7.09	0.14
Sawmill Vent 2	SAWMILL2				15.24				7.09	0.14
Sawmill Vent 3	SAWMILL3				15.24				7.09	0.14
Sawmill Vent 4	SAWMILL4				15.24				7.09	0.14
Dry Kiln	KILN1				7.36				3.54	4.25
Dry Kiln	KILN2				7.36				3.54	4.25
Dry Kiln	KILN3				7.36				3.54	4.25
Dry Kiln	KILN4				7.36				3.54	4.25
Volume Source(s)										
Green Lathe Cyclone Bin	GBIN				4.12				1.91	1.28
Processor A Cyclone Bin	ABIN				4.12				1.91	1.13
Processor B Cyclone Bin	BBIN				4.12				1.91	0.71
Pole Lathe Cyclone Bin	PBIN				4.12				1.91	1.06
Sawmill Sawdust Bin	SBIN				4.12				1.91	1.06
Sawmill Wood Chip Bin	WBIN1				4.12				1.91	1.06
Sawmill Wood Chip Bin	WBIN2				4.12				1.91	1.06
Debarker Screen	DEBSCR				4.12				2.55	0.85

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline - 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 3
04/05/2007

Please see instructions on page 2 before filling out the form.

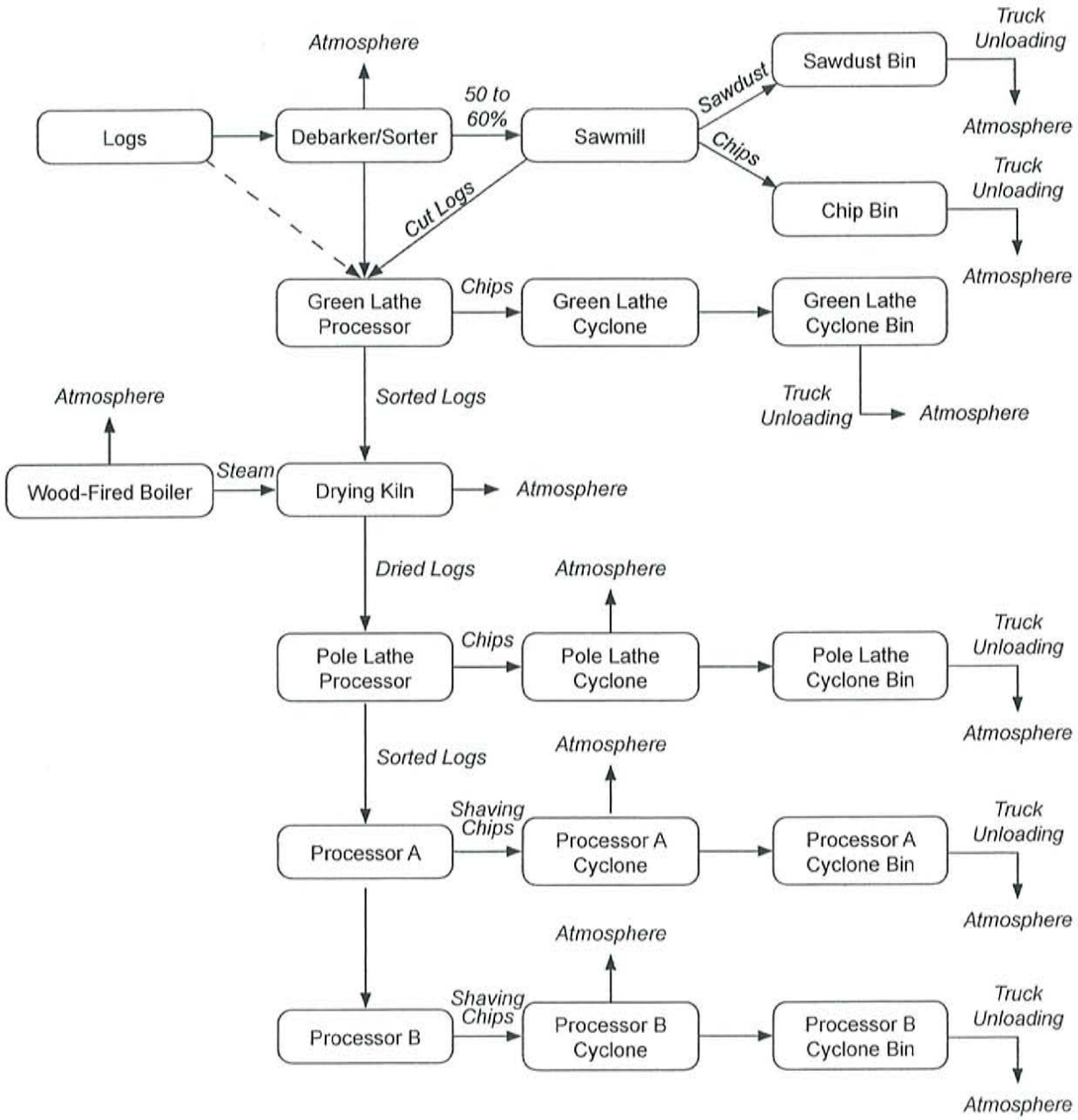
Company Name:	Treasure Valley Forest Products
Facility Name:	Treasure Valley Forest Products
Facility ID No.:	
Brief Project Description:	Install Sawmill

BUILDING AND STRUCTURE INFORMATION

1.	2.	3.	4.	5.	6.	7.
Building ID Number	**Length (ft)**	**Width (ft)**	**Base Elevation (m)**	**Building Height (m)**	**Number of Tiers**	**Description/Comments**
Green Lathe	225.00	60.00		20	1	
Dry Kiln	165.00	30.00		25	1	
Processor B	200.00	40.00		25	1	
Pole Lathe	30.00	16.00		20	1	
Truck Shop	80.00	75.00		25	1	
Maint. Shop	60.00	50.00		30	1	
TVFP Office	50.00	25.00		16	1	
Sawmill	200.00	100.00		50	1	

Appendix C

Process Description/Process Flow Diagrams



Log Processing
Permit to Construct
Treasure Valley Forest Products—Yamhill

Process Description

The Yamhill facility receives green logs of primarily ponderosa pine for processing. The green logs are debarked, cut to the desired length, and roughly sized to the desired diameter. The logs are then moved by heavy equipment to either a C-Frame Sawmill to produce lumber or a green lathe building to lathe the logs to 1" over finished size. Lumber and lathed logs are moved by heaving equipment to the drying kilns. The drying kiln consists of a 2000 square foot building heated to 120°F with hot water radiators. The hot water is heated in a wood-fired boiler.

The lumber and lathed logs remain in the drying kiln 8-10 weeks to reduced moisture content from approximately 35% to less than 15%. After the logs are dry, they are finished to the desired diameter, length and smoothness in one or more of several processors at the site.

Debarker/Sorter

The Debarker/sorter is used for the purpose of removing bark from green logs of pine and fir. The Debarker includes a chop saw that is used to cut logs to a desired length. The bark pieces removed from the logs are belt-conveyed through a screen which separates the pieces into several fine through coarse grades. The maximum Debarker throughput is estimated by TVFP at 13 million board feet (bd-ft) per year. Emissions from the Debarker are uncontrolled.

There is no stack from the Debarker. Fugitive emissions from the Debarker/Sorter include particulate matter (PM).

Drying Kiln

Debarked and roughly processed logs are dried in a 2,000 square foot building or drying kiln heated to 120°F with hot water radiators. The Drying Kiln maximum annual throughput is based on 1 million bd-ft/yr. An additional 12 mm bd-ft/yr will be air dried and kiln dried at another facility in Mountain Home. The kiln is divided into six areas, each with the capacity to hold a wood stack of approximately 560 logs or 5,000 lineal feet. Four fans circulate air inside the kiln. The logs require 8-10 weeks to dry from a nominal 35% moisture content down to less than 15% moisture.

There is no stack from the kiln. Fugitive emissions from the kiln include PM, volatile organic compounds (VOCs) and hazardous air pollutants (HAPs).

Boiler

The wood-fired boiler is used to generate hot water used in the radiators to heat the drying kiln. The boiler burns wood scraps and has a rated fuel input of 500,000 Btu per hour.

Emissions from the boiler are routed to a stack. No controls are used to control emissions. Emissions include CO, NO_x, PM, SO_2, VOC and HAPs. Fuel burning equipment for indirect heating with a capacity of less than 1,000,000 Btu per hour input is considered an exempt source in the PTC requirements (IDAPA 58.01.01, section 222.02.d).

Log Processors

The Yamhill facility operates four log processors. The first, the Green Lathe processor, is used to roughly size green logs prior to drying. All logs are normally debarked in the Debarker/Sorter prior to being sized in the Green Lathe processor. Chips and other wood residues produced in the processor are drawn through a cyclone and collected in one of two adjacent bins with a capacity of 2,800 cubic feet each. The cyclone is not equipped with a baghouse. TVFP estimates that each Green Lathe bin is filled every 14 hours of operation when the logs are processed through the Green Lathe.

The second log processor, Processor A, is used to shave dry logs. Shavings and other wood residues produced in the processor are drawn through a cyclone and collected in an overhead bin with a capacity of 4,800 cubic feet. The cyclone is not equipped with a baghouse. TVFP estimates that the Processor A bin is filled every 120 hours of operation.

The third log processor, Processor B, is also used to shave dry logs. The Processor B cyclone and chip bin are used to collect the dried wood shavings and chips from the log processor, and from several drills and a floor vacuum. The bin has a capacity of 600 cubic feet and continuously empties into a semi-tractor truck with a capacity of 15 tons parked underneath it. The cyclone is not equipped with a baghouse. TVFP estimates the truck is filled once every week of operation.

The fourth log processor, the Pole Lathe processor, is used to size dried logs. Chips and other wood residues produced in the Pole Lathe processor are drawn into a cyclone and collected in a bin with a capacity of 2,800 cubic feet. The cyclone is not equipped with a baghouse. TVFP estimates that the Pole Lathe bin is filled every nine days of operation.

With the exception of the Processor B bin which discharges continuously, the log processor bins are emptied periodically outside into trucks. The drop distance from the bottom of the bins into the truck bed is based on 70% full enclosure (*Division of Environmental Protection, Office of Air Quality for West Virginia)*. The loadout bins are equipped with flaps which seal the drop zone between the bin and the long sides of the truck bed. After the truck bed is filled, the load is covered with a tarp before the truck leaves the site.

Particulate matter is the only regulated air pollutant emitted from the log processors cyclones and chip bins.

Sawdust Pile

On occasion, the Yamhill facility will store sawdust and/or other wood residues in a small stockpile at the site. The maximum rate of collection is less than one 100 cubic yard

truckload per week. The facility uses a front-end loader to transfer the wood residue into the truck bed. After the truck bed is filled, the load is covered with a tarp before the truck leaves the site. At the end of July, the practice of storing sawdust from the chip bins at the Yamhill facility will be discontinued. This sawdust will be transported directly to a facility in Mountain Home.

Particulate matter is the only regulated air pollutant emitted from the sawdust pile.

Sawmill

TVFP plans to install a new sawmill at the Yamhill facility. This sawmill will process 12 million of the 13 million bd-ft of logs per year that can be debarked in the Debarker. The sawmill will be located inside a building and there will be no stack vent. The Yamhill facility will convey the residues across a sorter on an enclosed conveyor and drop them into two enclosed storage bins. The first bin will have a capacity of 2,800 cubic feet and will hold sawdust. The second bin will have a capacity of 6,000 cubic feet and hold wood chips. Both of the wood residue bins will be equipped with unloading flaps. While the unloading of the bins will occur outside, the wood residue conveyors will be covered all the way into the bins.

Particulate matter is the only regulated air pollutant emitted from the sawmill bins.

Appendix D

Emission Estimates/Reference Information

Treasure Valley Forest Products - Lodge Logs
Facility Summary Sheet

Unit No.	Source Description	Emission Factor Source	Emission Rate (ton/year)							Emission Rate (lb/hr)						
			PM	PM-10	NOx	SO2	CO	VOC	HAPs	PM	PM-10	NOx	SO2	CO	VOC	HAPs
BOILER	**Wood-Fired Boiler**	IDEQ, MFG.	0.3	0.3	0.76	0.039	0.94	0.0265	0.0337	0.1	0.1	0.245	0.0125	0.300	0.0085	0.0108
SAW	**Sawmill**	IDEQ	1.64	0.94						1.58	0.90					
KILN	**Dry Kiln**	IDEQ	0.005	0.0026				1.65	0.03	0.02	0.0108				6.88	0.14
DEB	**Debarker**	IDEQ	1.94	1.09						1.86	1.05					
DEBS	**Debarker Screen**	IDEQ	0.16	0.07						0.15	0.07					
	Cyclones															
GCYCL	Green Lathe	IDEQ	2.57	1.28						2.47	1.23					
ACYCL	Processor A	IDEQ	0.26	0.13						0.25	0.12					
BCYCL	Processor B	IDEQ	0.04	0.02						0.04	0.02					
PCYCL	Pole Lathe	IDEQ	0.25	0.12						0.24	0.12					
	Bins															
GBIN	Green Lathe Cyclone	IDEQ	0.005	0.002						0.005	0.002					
ABIN	Processor A Cyclone	IDEQ	0.0005	0.0002						0.0005	0.0002					
BBIN	Processor B Cyclone	IDEQ	0.00007	0.00003						0.00007	0.00003					
PBIN	Pole Lathe Cyclone	IDEQ	0.0005	0.0002						0.0005	0.0002					
SBIN	Sawmill Sawdust	IDEQ	0.0009	0.0004						0.0008	0.0004					
WBIN	Sawmill Wood Chip 1	IDEQ	0.002	0.001						0.002	0.001					
WBIN1	Sawmill Wood Chip 2	IDEQ	0.002	0.001						0.002	0.001					
PILE	**Sawdust Pile**	IDEQ	0.87	0.31						0.83	0.30					
	Facility Total		8.0	4.3	0.8	0.0	0.9	1.7		7.5	3.9	0.2	0.0	0.3	6.9	
	Significant Emission Rates (10%)		**2.5**	**1.5**	**4.0**	**4.0**	**10.0**	**4.0**								
	Modeling Threshold		na	1.0	1.0	1.0	na	na		na	0.2	na	0.2	14.0	na	
	Modeling Required			**Yes**	**No**	**No**					**Yes**		**No**	**No**		

Treasure Valley Forest Products - Lodge Logs
Toxic Summary Sheet

Pollutant	Total TAPS (lb/hr)	IDAPA 58.01.01.585/ 586 - EL (lb/hr)	PTE Emission Rate vs. EL
Benzo(a)anthracene	3.25E-08	NA	Below
Benzo(a)pyrene	1.30E-06	2.00E-06	Below
Benzo(b)fluoranthene	5.00E-08	NA	Below
Benzo(j,k)fluoranthene	8.00E-08	NA	Below
Benzo(k)fluoranthene	1.80E-08	NA	Below
Chrysene	1.90E-08	NA	Below
Dibenzo(a,h)anthracene	4.55E-09	NA	Below
Indeno(1,2,3,c,d)pyrene	4.35E-08	NA	Below
Phenanthrene	3.50E-06	NA	Below
Pyrene	1.85E-06	NA	Below
Acenaphthene	4.55E-07	NA	Below
Acenaphthylene	2.50E-06	NA	Below
Anthracene	1.50E-06	NA	Below
Benzo(e)pyrene	1.30E-09	NA	Below
Benzo(g,h,i)perylene	4.65E-08	NA	Below
Fluoranthene	8.00E-07	NA	Below
Fluorene	1.70E-06	NA	Below
Naphthalene	4.85E-05	3.33E+00	Below
2-Methylnaphthalene	8.00E-08	NA	Below
Acetaldehyde	4.15E-04	3.00E-03	Below
Acetophenone	1.60E-09	NA	Below
Acrolein	2.00E-03	1.70E-02	Below
Benzene	2.10E-03	8.00E-04	**Exceeds**
bis(2-Ethylhexyl)phthalate	2.35E-08	2.80E-02	Below
Bromomethane (methylene bromide)	7.50E-06	NA	Below
2-Butanone (MEK)	2.70E-06	3.93E+01	Below
Carbazole	9.00E-07	NA	Below
Carbon Tetrachloride	2.25E-05	4.40E-04	Below
Chlorobenzene	3.95E-04	2.33E+01	Below
Chloroform	1.65E-05	2.80E-04	Below
Chlorine	1.40E-05	2.00E-01	Below
Chloromethane	1.15E-05	NA	Below
2-Chloronaphthalene	1.20E-09	NA	Below
Crotonaldehyde	4.95E-06	3.80E-01	Below
Decachlorobiphenyl	1.35E-10	NA	Below
Dichlorobiphenyl	3.70E-10	NA	Below
1,2-Dichloroethane (ethylene dichloride)	1.45E-05	2.50E-04	Below
Dichloromethane	1.45E-04	1.60E-03	Below
1,2-Dichloropropane	1.65E-05	2.31E+01	Below
2,4-Dinitrophenol	9.00E-08	NA	Below
Ethylbenzene	1.55E-05	2.90E+01	Below
Formaldehyde	8.24E-03	5.10E-04	**Exceeds**
Heptachlorobiphenyl	3.30E-11	NA	Below
Hexachlorobiphenyl	2.75E-10	NA	Below
Heptachlorodibenzo-p-dioxins	1.00E-09	NA	Below
Heptachlorodibenzo-p-furans	1.20E-10	NA	Below
Hexachlorodibenzo-p-dioxins	8.00E-07	NA	Below
Hexachlorodibenzo-p-furans	1.40E-10	NA	Below
Hydrogen chloride	1.20E-03	5.00E-02	Below
Methanol	1.35E-01	1.73E+01	Below
Monochlorobiphenyl	1.10E-10	NA	Below
4-Nitrophenol	5.50E-08	NA	Below
Octachlorodibenzo-p-dioxins	3.30E-08	NA	Below
Octachlorodibenzo-p-furans	4.40E-11	NA	Below
Pentachlorodibenzo-p-dioxins	7.50E-10	NA	Below

Treasure Valley Forest Products - Lodge Logs
Toxic Summary Sheet

Pollutant	Total TAPS (lb/hr)	IDAPA 58.01.01.585/ 586 - EL (lb/hr)	PTE Emission Rate vs. EL
Pentachlorodibenzo-p-furans	2.10E-10	NA	Below
Pentachlorobiphenyl	6.00E-10	NA	Below
Pentachlorophenol	2.55E-08	3.30E-02	Below
Perylene	2.60E-10	NA	Below
Phenol	2.55E-05	1.27E+00	Below
Propanal	1.60E-06	NA	Below
Propionaldehyde	3.05E-05	2.87E-02	Below
Styrene	9.50E-04	6.67E+00	Below
2,3,7,8-Tetrachlorodibenzo-p-dioxins	4.30E-12	NA	Below
Tetrachlorodibenzo-p-dioxins	2.35E-10	NA	Below
2,3,7,8-Tetrachlorodibenzo-p-furans	4.50E-11	NA	Below
Tetrachlorodibenzo-p-furans	3.75E-10	NA	Below
Tetrachlorobiphenyl	1.25E-09	NA	Below
Tetrachloroethene	1.90E-05	1.30E-02	Below
Trichlorobiphenyl	1.30E-09	NA	Below
1,1,1-Trichloroethane	1.55E-05	NA	Below
Trichloroethene	1.50E-05	1.79E+01	Below
Toluene	4.60E-04	2.50E+01	Below
2,4,6-Trichlorophenol	1.10E-08	1.20E-03	Below
Vinyl Chloride	9.00E-06	9.40E-04	Below
o-Xylene	1.25E-05	2.90E+01	Below
Antimony	3.95E-06	3.30E-02	Below
Arsenic	1.10E-05	1.50E-06	**Exceeds**
Barium	8.50E-05	3.30E-02	Below
Beryllium	5.50E-07	2.80E-05	Below
Cadmium (volatile metal)	2.05E-06	3.70E-06	Below
Chromium, total	1.05E-05	3.30E-02	Below
Chromium, hexavalent	1.75E-06	3.30E-02	Below
Cobalt	3.25E-06	3.30E-03	Below
Copper	2.45E-05	6.70E-02	Below
Iron	4.95E-04	3.33E-01	Below
Lead (volatile metal)	2.40E-05	NA	Below
Manganese	8.00E-04	3.33E-01	Below
Mercury (volatile metal)	1.75E-06	7.00E-03	Below
Molybdenum	1.05E-06	3.33E-01	Below
Nickel	1.65E-05	2.70E-05	Below
Phosphorus	1.35E-05	7.00E-03	Below
Potassium	1.95E-02	NA	Below
Selenium (volatile metal)	1.40E-06	1.30E-02	Below
Silver	8.50E-04	7.00E-03	Below
Sodium	1.80E-04	NA	Below
Tin	1.15E-05	7.00E-03	Below
Vanadium	4.90E-07	3.00E-03	Below
Yttrium	1.50E-07	6.70E-02	Below
Zinc	2.10E-04	6.67E-01	Below

Treasure Valley Forest Products - Lodge Logs
Wood Waste Boiler

Hours of Operation	6240	hr/yr	Based on charging woodbox once per day, which fuels boiler for 24 hours, five days per week.
Heat Input =	0.5	MMBtu/hr	
Throughput	175.0	lbs wood scraps/day	

Pollutant	Emission Factor	Units	Reference	CAA 112(b) HAP?	Emissions lb/hr	Emissions TPY	IDAPA 58.01.01.585/586 - EL lb/hr	PTE Emission Rate vs. EL
Particulate Matter	1.33E+01	g/kg	1	N	0.10	0.30		
Sulfur Dioxide	2.50E-02	lb/MMBtu	2	N	1.25E-02	3.90E-02		
Nitrogen Oxides	4.90E-01	lb/MMBtu	2	N	2.45E-01	7.64E-01		
Carbon Monoxide	6.00E-01	lb/MMBtu	2	N	3.00E-01	9.36E-01		
VOC	1.70E-02	lb/MMBtu	3	N	8.50E-03	2.65E-02		
Benzo(a)anthracene	6.50E-08	lb/MMBtu	3	Y	3.25E-08	1.01E-07	NA	Below
Benzo(a)pyrene	2.60E-06	lb/MMBtu	3	Y	1.30E-06	4.06E-06	2.00E-06	Below
Benzo(b)fluoranthene	1.00E-07	lb/MMBtu	3	Y	5.00E-08	1.56E-07	NA	Below
Benzo(j,k)fluoranthene	1.60E-07	lb/MMBtu	3	Y	8.00E-08	2.50E-07	NA	Below
Benzo(k)fluoranthene	3.60E-08	lb/MMBtu	3	Y	1.80E-08	5.62E-08	NA	Below
Chrysene	3.80E-08	lb/MMBtu	3	Y	1.90E-08	5.93E-08	NA	Below
Dibenzo(a,h)anthracene	9.10E-09	lb/MMBtu	3	Y	4.55E-09	1.42E-08	NA	Below
Indeno(1,2,3,c,d)pyrene	8.70E-08	lb/MMBtu	3	Y	4.35E-08	1.36E-07	NA	Below
Phenanthrene	7.00E-06	lb/MMBtu	3	N	3.50E-06	0.00E+00	NA	Below
Pyrene	3.70E-06	lb/MMBtu	3	N	1.85E-06	0.00E+00	NA	Below
Acenaphthene	9.10E-07	lb/MMBtu	3	N	4.55E-07	0.00E+00	NA	Below
Acenaphthylene	5.00E-06	lb/MMBtu	3	N	2.50E-06	0.00E+00	NA	Below
Anthracene	3.00E-06	lb/MMBtu	3	N	1.50E-06	0.00E+00	NA	Below
Benzo(e)pyrene	2.60E-09	lb/MMBtu	3	Y	1.30E-09	4.06E-09	NA	Below
Benzo(g,h,i)perylene	9.30E-08	lb/MMBtu	3	Y	4.65E-08	1.45E-07	NA	Below
Fluoranthene	1.60E-06	lb/MMBtu	3	N	8.00E-07	0.00E+00	NA	Below
Fluorene	3.40E-06	lb/MMBtu	3	N	1.70E-06	0.00E+00	NA	Below
Naphthalene	9.70E-05	lb/MMBtu	3	Y	4.85E-05	1.51E-04	3.33	Below
2-Methylnaphthalene	1.60E-07	lb/MMBtu	3	N	8.00E-08	0.00E+00	NA	Below
Acetaldehyde	8.30E-04	lb/MMBtu	3	Y	4.15E-04	1.29E-03	3.00E-03	Below
Acetophenone	3.20E-09	lb/MMBtu	3	Y	1.60E-09	4.99E-09	NA	Below
Acrolein	4.00E-03	lb/MMBtu	3	Y	2.00E-03	6.24E-03	0.017	Below
Benzene	4.20E-03	lb/MMBtu	3	Y	2.10E-03	6.55E-03	8.00E-04	**Exceeds**
bis(2-Ethylhexyl)phthalate	4.70E-08	lb/MMBtu	3	Y	2.35E-08	7.33E-08	2.80E-02	Below
Bromomethane (methylene bromide)	1.50E-05	lb/MMBtu	3	Y	7.50E-06	2.34E-05	NA	Below
2-Butanone (MEK)	5.40E-06	lb/MMBtu	3	Y	2.70E-06	8.42E-06	39.3	Below
Carbazole	1.80E-06	lb/MMBtu	3	N	9.00E-07	0.00E+00	NA	Below
Carbon Tetrachloride	4.50E-05	lb/MMBtu	3	Y	2.25E-05	7.02E-05	4.40E-04	Below
Chlorobenzene	7.90E-04	lb/MMBtu	3	Y	3.95E-04	1.23E-03	23.3	Below
Chloroform	3.30E-05	lb/MMBtu	3	Y	1.65E-05	5.15E-05	2.80E-04	Below
Chlorine	2.80E-05	lb/MMBtu	3	Y	1.40E-05	4.37E-05	0.2	Below
Chloromethane	2.30E-05	lb/MMBtu	3	N	1.15E-05	0.00E+00	NA	Below
2-Chloronaphthalene	2.40E-09	lb/MMBtu	3	N	1.20E-09	0.00E+00	NA	Below
Crotonaldehyde	9.90E-06	lb/MMBtu	3	N	4.95E-06	0.00E+00	0.38	Below
Decachlorobiphenyl	2.70E-10	lb/MMBtu	3	N	1.35E-10	0.00E+00	NA	Below
Dichlorobiphenyl	7.40E-10	lb/MMBtu	3	N	3.70E-10	0.00E+00	NA	Below
1,2-Dichloroethane (ethylene dichlorid	2.90E-05	lb/MMBtu	3	Y	1.45E-05	4.52E-05	2.50E-04	Below
Dichloromethane	2.90E-04	lb/MMBtu	3	N	1.45E-04	0.00E+00	1.60E-03	Below
1,2-Dichloropropane	3.30E-05	lb/MMBtu	3	N	1.65E-05	0.00E+00	23.133	Below
2,4-Dinitrophenol	1.80E-07	lb/MMBtu	3	Y	9.00E-08	2.81E-07	NA	Below
Ethylbenzene	3.10E-05	lb/MMBtu	3	Y	1.55E-05	4.84E-05	29	Below
Formaldehyde	4.40E-03	lb/MMBtu	3	Y	2.20E-03	6.86E-03	5.10E-04	**Exceeds**
Heptachlorobiphenyl	6.60E-11	lb/MMBtu	3	N	3.30E-11	0.00E+00	NA	Below
Hexachlorobiphenyl	5.50E-10	lb/MMBtu	3	N	2.75E-10	0.00E+00	NA	Below
Heptachlorodibenzo-p-dioxins	2.00E-09	lb/MMBtu	3	Y	1.00E-09	3.12E-09	NA	Below
Heptachlorodibenzo-p-furans	2.40E-10	lb/MMBtu	3	Y	1.20E-10	3.74E-10	NA	Below
Hexachlorodibenzo-p-dioxins	1.60E-06	lb/MMBtu	3	Y	8.00E-07	2.50E-06	NA	Below
Hexachlorodibenzo-p-furans	2.80E-10	lb/MMBtu	3	Y	1.40E-10	4.37E-10	NA	Below
Hydrogen chloride	2.39E-03	lb/MMBtu	4	Y	1.20E-03	3.73E-03	0.05	Below
Monochlorobiphenyl	2.20E-10	lb/MMBtu	3	N	1.10E-10	0.00E+00	NA	Below
4-Nitrophenol	1.10E-07	lb/MMBtu	3	Y	5.50E-08	1.72E-07	NA	Below
Octachlorodibenzo-p-dioxins	6.60E-08	lb/MMBtu	3	Y	3.30E-08	1.03E-07	NA	Below
Octachlorodibenzo-p-furans	8.80E-11	lb/MMBtu	3	Y	4.40E-11	1.37E-10	NA	Below
Pentachlorodibenzo-p-dioxins	1.50E-09	lb/MMBtu	3	Y	7.50E-10	2.34E-09	NA	Below
Pentachlorodibenzo-p-furans	4.20E-10	lb/MMBtu	3	Y	2.10E-10	6.55E-10	NA	Below
Pentachlorobiphenyl	1.20E-09	lb/MMBtu	3	N	6.00E-10	0.00E+00	NA	Below
Pentachlorophenol	5.10E-08	lb/MMBtu	3	Y	2.55E-08	7.96E-08	0.033	Below
Perylene	5.20E-10	lb/MMBtu	3	N	2.60E-10	0.00E+00	NA	Below
Phenol	5.10E-05	lb/MMBtu	3	Y	2.55E-05	7.96E-05	1.27	Below
Propanal	3.20E-06	lb/MMBtu	3	N	1.60E-06	0.00E+00	NA	Below
Propionaldehyde	6.10E-05	lb/MMBtu	3	Y	3.05E-05	9.52E-05	0.0287	Below
Styrene	1.90E-03	lb/MMBtu	3	Y	9.50E-04	2.96E-03	6.67	Below
2,3,7,8-Tetrachlorodibenzo-p-dioxins	8.60E-12	lb/MMBtu	3	Y	4.30E-12	1.34E-11	NA	Below
Tetrachlorodibenzo-p-dioxins	4.70E-10	lb/MMBtu	3	Y	2.35E-10	7.33E-10	NA	Below
2,3,7,8-Tetrachlorodibenzo-p-furans	9.00E-11	lb/MMBtu	3	Y	4.50E-11	1.40E-10	NA	Below
Tetrachlorodibenzo-p-furans	7.50E-10	lb/MMBtu	3	Y	3.75E-10	1.17E-09	NA	Below
Tetrachlorobiphenyl	2.50E-09	lb/MMBtu	3	N	1.25E-09	0.00E+00	NA	Below
Tetrachloroethene	3.80E-05	lb/MMBtu	3	Y	1.90E-05	5.93E-05	1.30E-02	Below
Trichlorobiphenyl	2.60E-09	lb/MMBtu	3	N	1.30E-09	0.00E+00	NA	Below
1,1,1-Trichloroethane	3.10E-05	lb/MMBtu	3	N	1.55E-05	0.00E+00	NA	Below
Trichloroethene	3.00E-05	lb/MMBtu	3	N	1.50E-05	0.00E+00	17.93	Below
Toluene	9.20E-04	lb/MMBtu	3	Y	4.60E-04	1.44E-03	25	Below
2,4,6-Trichlorophenol	2.20E-08	lb/MMBtu	3	Y	1.10E-08	3.43E-08	1.20E-03	Below
Vinyl Chloride	1.80E-05	lb/MMBtu	3	Y	9.00E-06	2.81E-05	9.40E-04	Below
o-Xylene	2.50E-05	lb/MMBtu	3	Y	1.25E-05	3.90E-05	29	Below
Antimony	7.90E-06	lb/MMBtu	5	Y	3.95E-06	1.23E-05	0.033	Below
Arsenic	2.20E-05	lb/MMBtu	5	Y	1.10E-05	3.43E-05	1.50E-06	**Exceeds**
Barium	1.7E-04	lb/MMBtu	5	N	8.50E-05	0.00E+00	0.033	Below
Beryllium	1.10E-06	lb/MMBtu	5	Y	5.50E-07	1.72E-06	2.80E-05	Below
Cadmium (volatile metal)	4.10E-06	lb/MMBtu	5	Y	2.05E-06	6.40E-06	3.70E-06	Below

Treasure Valley Forest Products - Lodge Logs
Wood Waste Boiler

Hours of Operation	6240	hr/yr	Based on charging woodbox once per day, which fuels boiler for 24 hours, five days per week.
Heat Input =	0.5	MMBtu/hr	
Throughput	175.0	lbs wood scraps/day	

Pollutant	Emission Factor	Units	Reference	CAA 112(b) HAP?	Emissions lb/hr	Emissions TPY	IDAPA 58.01.01.585/586 - EL lb/hr	PTE Emission Rate vs. EL
Chromium, total	2.10E-05	lb/MMBtu	5	Y	1.05E-05	3.28E-05	0.033	Below
Chromium, hexavalent	3.50E-06	lb/MMBtu	5	N	1.75E-06	0.00E+00	0.033	Below
Cobalt	6.50E-06	lb/MMBtu	5	Y	3.25E-06	1.01E-05	0.0033	Below
Copper	4.9E-05	lb/MMBtu	5	N	2.45E-05	0.00E+00	0.067	Below
Iron	9.9E-04	lb/MMBtu	5	N	4.95E-04	0.00E+00	0.333	Below
Lead (volatile metal)	4.80E-05	lb/MMBtu	5	Y	2.40E-05	7.49E-05	NA	Below
Manganese	1.60E-03	lb/MMBtu	5	Y	8.00E-04	2.50E-03	0.333	Below
Mercury (volatile metal)	3.50E-06	lb/MMBtu	5	Y	1.75E-06	5.46E-06	0.007	Below
Molybdenum	2.1E-06	lb/MMBtu	5	N	1.05E-06	0.00E+00	0.333	Below
Nickel	3.30E-05	lb/MMBtu	5	Y	1.65E-05	5.15E-05	2.70E-05	Below
Phosphorus	2.70E-05	lb/MMBtu	5	Y	1.35E-05	4.21E-05	0.007	Below
Potassium	3.9E-02	lb/MMBtu	5	N	1.95E-02	0.00E+00	NA	Below
Selenium (volatile metal)	2.80E-06	lb/MMBtu	5	Y	1.40E-06	4.37E-06	0.013	Below
Silver	1.7E-03	lb/MMBtu	5	N	8.50E-04	0.00E+00	0.007	Below
Sodium	3.6E-04	lb/MMBtu	5	N	1.80E-04	0.00E+00	NA	Below
Tin	2.3E-05	lb/MMBtu	5	N	1.15E-05	0.00E+00	0.007	Below
Vanadium	9.8E-07	lb/MMBtu	5	N	4.90E-07	0.00E+00	0.003	Below
Yttrium	3.0E-07	lb/MMBtu	5	N	1.50E-07	0.00E+00	0.067	Below
Zinc	4.2E-04	lb/MMBtu	5	N	2.10E-04	0.00E+00	0.667	Below
Total HAPs					**0.01**	**0.03**		

References
1 "Emissions from Outdoor Wood-Burning Residential Hot Water Furnaces", EPA/600/SR-98/017, February 1998 (included in App D)
2 AP-42, Table 1.6-2
3 AP-42, Table 1.6-3
4 NCASI provides 2.39E-03 lb/mmbtu as the mean (BBE1-BBK). Table A-20 Technical Bulletin No 858. *"Compilation of 'Air Toxic' and Total Hydrocarbon Emissions Data Sulfite and Non-Chemical Pulp Mills and Update"* February 2003 (included in App D)
5 AP-42, Table 1.6-4

Treasure Valley Forest Products - Lodge Logs

Sawmill

Sawmill will be located inside a building and there will be no stack vent.
The sawmill will process 12,000,000 Bd-ft/yr of debarked logs or 46,154 bd-ft/day.
Hours of operation: 2,080 hr/yr

From Idaho DEQ Emission Factor Guide for Wood Industry (1/1997), Attachment A. 75% Ponderosa Pine, 25% Yellow Pine - Tex.
Density: 2.056 lb/bd-ft

Maximum hourly production rate: $\frac{47.45}{8}\ \frac{\text{ton logs}}{\text{hr}}$

Maximum annual production rate: 12,338 $\frac{\text{ton logs}}{\text{yr}}$

Idaho DEQ Emission Factor Guide for Wood Industry (1/1997), Sawing Logs

PM =	0.350	lb/ton logs
PM10 =	0.200	lb/ton logs
IDEQ Adjustment Factor =	0.76	allowed for wood moisture content of 35%

Potential Emissions

Sawmill	lb/hr	tpy
PM	1.58	1.64
PM10	0.90	0.94

Potential Emissions Calculations:

Maximum Hourly PM emissions:

$$\frac{47.45}{8}\ \frac{\text{tons}}{\text{hr}} \times 0.350\ \frac{\text{lb PM}}{\text{ton logs}} \times 0.76 = 1.58\ \text{lb/hr PM}$$

Maximum Annual PM emissions:

$$12{,}338\ \frac{\text{tons}}{\text{yr}} \times 0.350\ \frac{\text{lb PM}}{\text{ton logs}} \times \frac{1\ \text{ton}}{2000\ \text{lb}} \times 0.76 = 1.64\ \text{tpy PM}$$

Maximum Hourly PM10 emissions:

$$\frac{47.45}{8}\ \frac{\text{tons}}{\text{hr}} \times 0.200\ \frac{\text{lb PM10}}{\text{ton logs}} \times 0.76 = 0.90\ \text{lb/hr PM10}$$

Maximum Annual PM10 emissions:

$$12{,}338\ \frac{\text{tons}}{\text{yr}} \times 0.200\ \frac{\text{lb PM10}}{\text{ton logs}} \times \frac{1\ \text{ton}}{2000\ \text{lb}} \times 0.76 = 0.94\ \text{tpy PM10}$$

Treasure Valley Forest Products - Lodge Logs

Dry Kiln

Logs are dried in a 2000 sq ft building or drying kiln heated to 130 F with steam radiators. No stack vent emissions.
Hours of operation: 8,760 hr/yr

Maximum hourly production rate: $\frac{50{,}000 \text{ BF}}{24 \text{ hr}}$

Maximum annual production rate: $1{,}000{,}000 \frac{\text{BF}}{\text{yr}}$

From NCASI SARA Handbook Chemical-Specific Information for Wood Products Facilities (2006)

Methanol =	0.065	lb/MBF	Table 4, Small Scale, Ponderosa Pine
Formaldehyde =	0.0029	lb/MBF	Table 5, Small Scale, Ponderosa Pine

From NCASI Environmental Resource Handbook (10/31/2004) for Wood Products Plants, Chapter 3, Table 3.3.1.2-1, Kiln, Steam-Heated

VOC =	3.30	lb/MBF	expressed as carbon
PM =	0.009	lb/MBF	
PM10 =	0.005	lb/MBF	Using ratio of PM to PM10 for Kilns from Idaho DEQ Emission Factor Guide for Wood Industry (1/1997)

Potential Emissions

Dry Kiln	lb/hr	tpy
VOC	6.88	1.65
PM	0.02	0.005
PM10	0.01	0.003
HAPs	0.14	0.03

BF - board feet
MBF - thousand board feet
tpy - tons per year

Potential Emissions Calculations:

Maximum Hourly VOC emissions:

$$\frac{50{,}000 \text{ BF}}{24 \text{ hr}} \times \frac{3.30 \text{ lb VOC}}{1000 \text{ BF}} = 6.88 \text{ lb/hr VOC}$$

Maximum Annual VOC emissions:

$$1{,}000{,}000 \frac{\text{BF}}{\text{yr}} \times \frac{3.30 \text{ lb VOC}}{1000 \text{ BF}} \times \frac{1 \text{ ton}}{2000 \text{ lb}} = 1.65 \text{ tpy VOC}$$

Maximum Hourly PM emissions:

$$\frac{50{,}000 \text{ BF}}{24 \text{ hr}} \times \frac{0.01 \text{ lb PM}}{1000 \text{ BF}} = 0.02 \text{ lb/hr PM}$$

Maximum Annual PM emissions:

$$1{,}000{,}000 \frac{\text{BF}}{\text{yr}} \times \frac{0.01 \text{ lb PM}}{1000 \text{ BF}} \times \frac{1 \text{ ton}}{2000 \text{ lb}} = 0.005 \text{ tpy PM}$$

Maximum Hourly PM10 emissions:

$$\frac{50{,}000 \text{ BF}}{24 \text{ hr}} \times \frac{0.01 \text{ lb PM10}}{1000 \text{ BF}} = 0.0108 \text{ lb/hr PM10}$$

Treasure Valley Forest Products - Lodge Logs

Dry Kiln

Maximum Annual PM10 emissions:

$$1{,}000{,}000 \ \frac{BF}{yr} \times \frac{0.01 \ lb \ PM10}{1000 \ BF} \times \frac{1 \ ton}{2000 \ lb} = 0.0026 \ tpy \ PM10$$

Maximum Hourly Methanol emissions:

$$\frac{50{,}000}{24} \ \frac{BF}{hr} \times \frac{0.065 \ lb}{1000 \ BF} = 0.14 \ lb/hr \ Methanol$$

Below TAP EL (17.3 lb/hr)

Maximum Annual Methanol emissions:

$$1{,}000{,}000 \ \frac{BF}{yr} \times \frac{0.065 \ lb}{1000 \ BF} \times \frac{1 \ ton}{2000 \ lb} = 0.03 \ tpy \ Methanol$$

Maximum Hourly Formaldehyde emissions:

$$\frac{50000}{24} \ \frac{BF}{hr} \times \frac{0.0029 \ lb}{1000 \ BF} = 6.04E\text{-}03 \ lb/hr \ Formaldehyde$$

Exceeds TAP EL (5.1E-4 lb/hr)

Maximum Annual Formaldehyde emissions:

$$1{,}000{,}000 \ \frac{BF}{yr} \times \frac{0.0029 \ lb}{1000 \ BF} \times \frac{1 \ ton}{2000 \ lb} = 0.001 \ tpy \ Formaldehyde$$

Total HAPs 0.14 lb/hr
Total HAPs 0.03 tpy

Maximum Annual Formaldehyde emissions: Calculation used in Formaldehyde modeling - see footnote in Table 5 of modeling results report

$$13{,}000{,}000 \ \frac{BF}{yr} \times \frac{0.0029 \ lb}{1000 \ BF} \times \frac{1 \ ton}{2000 \ lb} = 0.019 \ tpy \ Formaldehyde$$

Treasure Valley Forest Products - Lodge Logs

Debarker

Maximum Debarker throughput is estimated at 13,000,000 board feet per year or 50,000 board feet per day.
Emissions are uncontrolled.
The Debarker includes a chop saw that is used to cut logs to a desired length.
No stack from the Debarker
Hours of operation: 2,080 hr/yr

From Idaho DEQ Emission Factor Guide for Wood Industry (1/1997), Attachment A. 75% Ponderosa Pine, 25% Yellow Pine - Tex.
Density: 2.056 lb/bd-ft

Maximum hourly production rate: $\frac{51}{8}\ \frac{\text{ton logs}}{\text{hr}}$

Maximum annual production rate: 13366 $\frac{\text{ton logs}}{\text{yr}}$

Idaho DEQ Emission Factor Guide for Wood Industry (1/1997), Log Debarking
PM = 0.024 lb/ton logs
PM10 = 0.011 lb/ton logs
Log sawing and debarking can result in the release of particulate matter.

Idaho DEQ Emission Factor Guide for Wood Industry (1/1997), Chop Saw (see note below)
PM = 0.350 lb/ton logs
PM10 = 0.200 lb/ton logs
IDEQ Adjustment Factor = 0.76 allowed for wood moisture content of 35%

Note: Both AP-42, Section 10.9, Table 10.9-7 Engineered Wood Products Manufacturing and NCASI Environmental Resource Handbook for Wood Products Plants 2-3, Chapter 2: Woodyard and Wood Furnish Preparation © 2004 National Council for air and Stream improvement, have no available information to support a reasonable particulate matter emission factor for either debarking or log cutting. Therefore, the debarker emission calculations are provided for informational purposes only and not included in the dispersion modeling. This is further described in the modeling report (Appendix F).

Division of Environmental Protection, Office of Air Quality for West Virginia, Reference Document for General Permit Number G10-B, for the construction, modification, relocation, operation, and prevention and control of air pollution from the operation of coal preparation plants and coal handling operations

Potential Emissions

Debarker/Chop Saw	lb/hr	tpy
PM	1.86	1.94
PM10	1.05	1.09

Potential Emissions Calculations (Debarker):

Maximum Hourly PM emissions:

$$\frac{51}{8}\ \frac{\text{tons}}{\text{hr}} \times 0.024\ \frac{\text{lb PM}}{\text{ton logs}} = 0.15\ \text{lb/hr PM}$$

Maximum Annual PM emissions:

$$13{,}366\ \frac{\text{tons}}{\text{yr}} \times 0.024\ \frac{\text{lb PM}}{\text{ton logs}} \times \frac{1\ \text{ton}}{2000\ \text{lb}} = 0.16\ \text{tpy PM}$$

Maximum Hourly PM10 emissions:

$$\frac{51}{8}\ \frac{\text{tons}}{\text{hr}} \times 0.011\ \frac{\text{lb PM10}}{\text{ton logs}} = 0.07\ \text{lb/hr PM10}$$

Maximum Annual PM10 emissions:

$$13{,}366\ \frac{\text{tons}}{\text{yr}} \times 0.011\ \frac{\text{lb PM10}}{\text{ton logs}} \times \frac{1\ \text{ton}}{2000\ \text{lb}} = 0.07\ \text{tpy PM10}$$

Treasure Valley Forest Products - Lodge Logs

Debarker

Potential Emissions Calculations (Chop Saw):

Maximum Hourly PM emissions:

$$\frac{51.41}{8}\ \frac{\text{tons}}{\text{hr}} \times 0.350\ \frac{\text{lb PM}}{\text{ton logs}} \times 0.76 = 1.71\ \text{lb/hr PM}$$

Maximum Annual PM emissions:

$$13{,}366\ \frac{\text{tons}}{\text{yr}} \times 0.350\ \frac{\text{lb PM}}{\text{ton logs}} \times \frac{1\ \text{ton}}{2000\ \text{lb}} \times 0.76 = 1.78\ \text{tpy PM}$$

Maximum Hourly PM10 emissions:

$$\frac{51.41}{8}\ \frac{\text{tons}}{\text{hr}} \times 0.200\ \frac{\text{lb PM10}}{\text{ton logs}} \times 0.76 \times = 0.98\ \text{lb/hr PM10}$$

Maximum Annual PM10 emissions:

$$13{,}366\ \frac{\text{tons}}{\text{yr}} \times 0.200\ \frac{\text{lb PM10}}{\text{ton logs}} \times \frac{1\ \text{ton}}{2000\ \text{lb}} \times 0.76 = 1.02\ \text{tpy PM10}$$

Treasure Valley Forest Products - Lodge Logs

Debarker Screen

Maximum Debarker throughput is estimated at 13,000,000 board feet per year or 50,000 board feet per day.
Emissions are uncontrolled.
The Debarker includes a chop saw that is used to cut logs to a desired length.
No stack from the Debarker
Hours of operation: 2,080 hr/yr

From Idaho DEQ Emission Factor Guide for Wood Industry (1/1997), Attachment A. 75% Ponderosa Pine, 25% Yellow Pine - Tex.
Density: 2.056 lb/bd-ft

Maximum hourly production rate: $\frac{51}{8}\ \frac{\text{ton logs}}{\text{hr}}$

Maximum annual production rate: 13366 $\frac{\text{ton logs}}{\text{yr}}$

Idaho DEQ Emission Factor Guide for Wood Industry (1/1997), Log Debarking
PM = 0.024 lb/ton logs
PM10 = 0.011 lb/ton logs

Division of Environmental Protection, Office of Air Quality for West Virginia, Reference Document for General Permit Number G10-B, for the construction, modification, relocation, operation, and prevention and control of air pollution from the operation of coal preparation plants and coal handling operations

Potential Emissions

Debarker (Total)	lb/hr	tpy
PM	0.15	0.16
PM10	0.07	0.07

Potential Emissions Calculations (Debarker):

Maximum Hourly PM emissions:

$$\frac{51}{8}\ \frac{\text{tons}}{\text{hr}} \times 0.024\ \frac{\text{lb PM}}{\text{ton logs}} = 0.15\ \text{lb/hr PM}$$

Maximum Annual PM emissions:

$$13{,}366\ \frac{\text{tons}}{\text{yr}} \times 0.024\ \frac{\text{lb PM}}{\text{ton logs}} \times \frac{1\ \text{ton}}{2000\ \text{lb}} = 0.16\ \text{tpy PM}$$

Maximum Hourly PM10 emissions:

$$\frac{51}{8}\ \frac{\text{tons}}{\text{hr}} \times 0.011\ \frac{\text{lb PM10}}{\text{ton logs}} = 0.07\ \text{lb/hr PM10}$$

Maximum Annual PM10 emissions:

$$13{,}366\ \frac{\text{tons}}{\text{yr}} \times 0.011\ \frac{\text{lb PM10}}{\text{ton logs}} \times \frac{1\ \text{ton}}{2000\ \text{lb}} = 0.07\ \text{tpy PM10}$$

Treasure Valley Forest Products - Lodge Logs

Green Lathe Cyclone

The green lathe will be used to roughly size green logs prior to drying.
Logs will normally be debarked in the Debarker/Sorter prior to being sized but debarking can occur.
Chips and other wood residues are drawn through a cyclone and collected in one of two adjacent bins.
Capacity of bins is 2800 cubic feet. Each bin (2) will be filled every 14 hours of operation.
Wood is 35% moisture
Bulk density of wood is equal to the density of dry wood (2.056 lb/bd-ft) divided by the moisture content of the wood.

Bulk density: 38 lb/cf

Maximum hourly production rate: $\frac{69}{14}\ \frac{\text{ton bone-dry wood}}{\text{hr}}$

Maximum annual production rate: 10,264 $\frac{\text{ton bone-dry wood}}{\text{yr}}$

Idaho DEQ Emission Factor Guide for Wood Industry (1/1997), Cyclone Exhaust, Dry and Green Chips
PM = 0.5 lb/ton bone-dry wood
PM10 = 0.25 lb/ton bone-dry wood

Potential Emissions

Green Lathe Cyclone	lb/hr	tpy
PM	2.47	2.57
PM10	1.23	1.28

Potential Emissions Calculations:

Maximum Hourly PM emissions:

$$\frac{69}{14}\ \frac{\text{bone-dry w}}{\text{hr}} \times \frac{0.50\ \text{lb PM}}{\text{ton bone-dry wood}} \times = 2.47\ \text{lb/hr PM}$$

Maximum Annual PM emissions:

$$10{,}264\ \frac{\text{bone-dry w}}{\text{yr}} \times \frac{0.50\ \text{lb PM}}{\text{ton bone-dry wood}} \times \frac{1\ \text{ton}}{2000\ \text{lb}} = 2.57\ \text{tpy PM}$$

Maximum Hourly PM10 emissions:

$$\frac{69}{14}\ \frac{\text{bone-dry w}}{\text{hr}} \times \frac{0.25\ \text{lb PM10}}{\text{ton bone-dry wood}} = 1.23\ \text{lb/hr PM10}$$

Maximum Annual PM10 emissions:

$$10{,}264\ \frac{\text{bone-dry w}}{\text{yr}} \times \frac{0.25\ \text{lb PM10}}{\text{ton bone-dry wood}} \times \frac{1\ \text{ton}}{2000\ \text{lb}} = 1.28\ \text{tpy PM10}$$

Treasure Valley Forest Products - Lodge Logs

Green Lathe Cyclone Bin

Capacity of bins is 2800 cubic feet. Each bin (2) will be filled every 14 hours of operation.
Wood is 35% moisture
Bulk density of wood is equal to the density of dry wood (2.056 lb/bd-ft) divided by the moisture content of the wood.

Bulk density: 38 lb/cf

Maximum hourly production rate: $\frac{69}{14}$ $\frac{\text{ton bone-dry wood}}{\text{hr}}$

Maximum annual production rate: 10,264 $\frac{\text{ton bone-dry wood}}{\text{yr}}$

AP-42 Section 13.2.4 (Aggregate Handling and Storage Piles)

Wind Speed	3.5	mph
Material moisture content	4.3	%
PM Particle size multiplier	0.74	
PM =	0.001	lb/ton bone-dry wood
PM10 Particle size multiplier	0.35	
PM10 =	0.001	lb/ton bone-dry wood

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Control Factor = 70% Based on full enclosure from truck

Potential Emissions

Green Lathe Cyclone Bin	lb/hr	tpy
PM	0.005	0.005
PM10	0.002	0.002

Potential Emissions Calculations:

Maximum Hourly PM emissions:

$$\frac{69}{14} \frac{\text{bone-dry wc}}{\text{hr}} \times \frac{0.001 \text{ lb PM}}{\text{ton bone-dry wood}} \times 70\% = 0.005 \text{ lb/hr PM}$$

Maximum Annual PM emissions:

$$10{,}264 \frac{\text{bone-dry wc}}{\text{yr}} \times \frac{0.001 \text{ lb PM}}{\text{ton bone-dry wood}} \times \frac{1 \text{ ton}}{2000 \text{ lb}} \times 70\% = 0.005 \text{ tpy PM}$$

Maximum Hourly PM10 emissions:

$$\frac{69}{14} \frac{\text{bone-dry wc}}{\text{hr}} \times \frac{0.001 \text{ lb PM10}}{\text{ton bone-dry wood}} \times 70\% = 0.002 \text{ lb/hr PM10}$$

Maximum Annual PM10 emissions:

$$10{,}264 \frac{\text{bone-dry wc}}{\text{yr}} \times \frac{0.001 \text{ lb PM10}}{\text{ton bone-dry wood}} \times \frac{1 \text{ ton}}{2000 \text{ lb}} \times 70\% = 0.002 \text{ tpy PM10}$$

Treasure Valley Forest Products - Lodge Logs

Processor A Cyclone

Processor A will be used to shave dry logs
Shavings and other wood residues are drawn through a cyclone and collected in an overhead bin.
Capacity of bin is 4800 cubic feet. Each bin will be filled every 120 hours of operation.
Wood is 15% moisture
Bulk density of wood is equal to the density of dry wood (2.056 lb/bd-ft) divided by the moisture content of the wood.

Bulk density: 29 lb/cf

Maximum hourly production rate: $\frac{59}{120}$ $\frac{\text{ton bone-dry wood}}{\text{hr}}$

Maximum annual production rate: 1,026 $\frac{\text{ton bone-dry wood}}{\text{yr}}$

Idaho DEQ Emission Factor Guide for Wood Industry (1/1997), Cyclone Exhaust, Dry and Green Chips

PM = 0.5 lb/ton bone-dry wood
PM10 = 0.25 lb/ton bone-dry wood

Potential Emissions

Processor A Cyclone	lb/hr	tpy
PM	0.25	0.26
PM10	0.12	0.13

Potential Emissions Calculations:

Maximum Hourly PM emissions:

$$\frac{59}{120}\ \frac{\text{bone-dry w}}{\text{hr}} \times \frac{0.50\ \text{lb PM}}{\text{ton bone-dry wood}} = 0.25\ \text{lb/hr PM}$$

Maximum Annual PM emissions:

$$1{,}026\ \frac{\text{bone-dry w}}{\text{yr}} \times \frac{0.50\ \text{lb PM}}{\text{ton bone-dry wood}} \times \frac{1\ \text{ton}}{2000\ \text{lb}} = 0.26\ \text{tpy PM}$$

Maximum Hourly PM10 emissions:

$$\frac{59}{120}\ \frac{\text{bone-dry w}}{\text{hr}} \times \frac{0.25\ \text{lb PM10}}{\text{ton bone-dry wood}} = 0.12\ \text{lb/hr PM10}$$

Maximum Annual PM10 emissions:

$$1{,}026\ \frac{\text{bone-dry w}}{\text{yr}} \times \frac{0.25\ \text{lb PM10}}{\text{ton bone-dry wood}} \times \frac{1\ \text{ton}}{2000\ \text{lb}} = 0.13\ \text{tpy PM10}$$

Treasure Valley Forest Products - Lodge Logs

Processor A Bin Cyclone

Capacity of bin is 4800 cubic feet. Each bin will be filled every 120 hours of operation (not continuosly).
Wood is 15% moisture
Bulk density of wood is equal to the density of dry wood (2.056 lb/bd-ft) divided by the moisture content of the wood.

Bulk density: 29 lb/cf

Maximum hourly production rate: $\frac{59}{120}$ $\frac{\text{ton bone-dry wood}}{\text{hr}}$

Maximum annual production rate: 1,026 $\frac{\text{ton bone-dry wood}}{\text{yr}}$

AP-42 Section 13.2.4 (Aggregate Handling and Storage Piles)

Wind Speed	3.5	mph
Material moisture content	4.3	%
PM Particle size multiplier	0.74	
PM =	0.001	lb/ton bone-dry wood
PM10 Particle size multiplier	0.35	
PM10 =	0.001	lb/ton bone-dry wood

Division of Environmental Protection, Office of Air Quality for West Virginia, Reference Document for General Permit Number G10-B, for the construction, vmodification, relocation, operation, and prevention and control of air pollution from the operation of coal preparation plants and coal handling operations

Control Factor = 70% Based on full enclosure from truck

Potential Emissions

Processor A Bin Cyclone	lb/hr	tpy
PM	0.000	0.000
PM10	0.000	0.000

Potential Emissions Calculations:

Maximum Hourly PM emissions:

$$\frac{59}{120}\ \frac{\text{bone-dry w}}{\text{hr}} \times \frac{0.001\ \text{lb PM}}{\text{ton bone-dry wood}} \times 70\% = 0.0005\ \text{lb/hr PM}$$

Maximum Annual PM emissions:

$$1{,}026\ \frac{\text{bone-dry w}}{\text{yr}} \times \frac{0.001\ \text{lb PM}}{\text{ton bone-dry wood}} \times \frac{1\ \text{ton}}{2000\ \text{lb}} \times 70\% = 0.0005\ \text{tpy PM}$$

Maximum Hourly PM10 emissions:

$$\frac{59}{120}\ \frac{\text{bone-dry w}}{\text{hr}} \times \frac{0.001\ \text{lb PM10}}{\text{ton bone-dry wood}} \times 70\% = 0.0002\ \text{lb/hr PM10}$$

Maximum Annual PM10 emissions:

$$1{,}026\ \frac{\text{bone-dry w}}{\text{yr}} \times \frac{0.001\ \text{lb PM10}}{\text{ton bone-dry wood}} \times \frac{1\ \text{ton}}{2000\ \text{lb}} \times 70\% = 0.0002\ \text{tpy PM10}$$

Treasure Valley Forest Products - Lodge Logs

Processor B Cyclone

Processor B will be used to shave dry logs

Shavings and other wood residues from the processor, drills and a floor vacuum are drawn through a cyclone and collected in an overhead bin.

Capacity of bin is 600 cubic feet. A trailer truck will be filled with a 15-ton load every month of operation

Wood is 15% moisture

Maximum hourly production rate: 13 / 173 ton bone-dry wood / hr

Maximum annual production rate: 153 ton bone-dry wood / yr

Idaho DEQ Emission Factor Guide for Wood Industry (1/1997), Cyclone Exhaust, Dry and Green Chips

PM = 0.5 lb/ton bone-dry wood

PM10 = 0.25 lb/ton bone-dry wood

Potential Emissions

Processor B Cyclone	lb/hr	tpy
PM	0.04	0.04
PM10	0.02	0.02

Potential Emissions Calculations:

Maximum Hourly PM emissions:

$$\frac{13}{173}\ \frac{\text{ton bone-dry wood}}{0} \times \frac{0.50\ \text{lb PM}}{\text{ton bone-dry wood}} = 0.04\ \text{lb/hr PM}$$

Maximum Annual PM emissions:

$$153\ \frac{\text{ton bone-dry wood}}{\text{yr}} \times \frac{0.50\ \text{lb PM}}{\text{ton bone-dry wood}} \times \frac{1\ \text{ton}}{2000\ \text{lb}} = 0.04\ \text{tpy PM}$$

Maximum Hourly PM10 emissions:

$$\frac{13}{173}\ \frac{\text{ton bone-dry wood}}{0} \times \frac{0.25\ \text{lb PM10}}{\text{ton bone-dry wood}} = 0.02\ \text{lb/hr PM10}$$

Maximum Annual PM10 emissions:

$$153\ \frac{\text{ton bone-dry wood}}{\text{yr}} \times \frac{0.25\ \text{lb PM10}}{\text{ton bone-dry wood}} \times \frac{1\ \text{ton}}{2000\ \text{lb}} = 0.02\ \text{tpy PM10}$$

Treasure Valley Forest Products - Lodge Logs

Processor B Cyclone Bin

Capacity of bin is 600 cubic feet. A trailer truck will be filled with a 15-ton load every month of operation
Wood is 15% moisture

Maximum hourly production rate: $\frac{13}{173}$ $\frac{\text{ton bone-dry wood}}{\text{hr}}$

Maximum annual production rate: 153 $\frac{\text{ton bone-dry wood}}{\text{yr}}$

AP-42 Section 13.2.4 (Aggregate Handling and Storage Piles)

Wind Speed	3.5	mph
Material moisture content	4.3	%
PM Particle size multiplier	0.74	
PM =	0.001	lb/ton bone-dry wood
PM10 Particle size multiplier	0.35	
PM10 =	0.001	lb/ton bone-dry wood

Division of Environmental Protection, Office of Air Quality for West Virginia, Reference Document for General Permit Number G10-B, for the construction, modification, relocation, operation, and prevention and control of air pollution from the operation of coal preparation plants and coal handling operations

Control Factor = 70% Based on full enclosure from truck

Potential Emissions

Processor B Cyclone Bin	lb/hr	tpy
PM	0.0001	0.0001
PM10	0.00003	0.00003

Potential Emissions Calculations:

Maximum Hourly PM emissions:

$$\frac{13}{173}\ \frac{\text{ton bone-dry wood}}{\text{hr}} \times \frac{0.00\ \text{lb PM}}{\text{ton bone-dry wood}} \times 70\% = 0.0001\ \text{lb/hr PM}$$

Maximum Annual PM emissions:

$$153\ \frac{\text{ton bone-dry wood}}{\text{yr}} \times \frac{0.00\ \text{lb PM}}{\text{ton bone-dry wood}} \times \frac{1\ \text{ton}}{2000\ \text{lb}} \times 70\% = 0.0001\ \text{tpy PM}$$

Maximum Hourly PM10 emissions:

$$\frac{13}{173}\ \frac{\text{ton bone-dry wood}}{\text{hr}} \times \frac{0.00\ \text{lb PM10}}{\text{ton bone-dry wood}} \times 70\% = 0.00003\ \text{lb/hr PM10}$$

Maximum Annual PM10 emissions:

$$153\ \frac{\text{ton bone-dry wood}}{\text{yr}} \times \frac{0.00\ \text{lb PM10}}{\text{ton bone-dry wood}} \times \frac{1\ \text{ton}}{2000\ \text{lb}} \times 70\% = 0.00003\ \text{tpy PM10}$$

Treasure Valley Forest Products - Lodge Logs

Pole Lathe Cyclone

The pole lathe will be used to size dried logs
Chips and other wood residues are drawn through a cyclone and collected in a bin.
Capacity of bin is 2800 cubic feet. Each bin will be filled every 9 days of operation.
Wood is 15% moisture
Bulk density of wood is equal to the density of dry wood (2.056 lb/bd-ft) divided by the moisture content of the wood.

Bulk density: 29 lb/cf

Maximum hourly production rate: $\frac{35}{72}$ $\frac{\text{ton bone-dry wood}}{\text{hr}}$

Maximum annual production rate: 998 $\frac{\text{ton bone-dry wood}}{\text{yr}}$

Idaho DEQ Emission Factor Guide for Wood Industry (1/1997), Cyclone Exhaust, Dry and Green Chips

PM = 0.5 lb/ton bone-dry wood
PM10 = 0.25 lb/ton bone-dry wood

Potential Emissions

Pole Lathe Cyclone	lb/hr	tpy
PM	0.24	0.25
PM10	0.12	0.12

Potential Emissions Calculations:

Maximum Hourly PM emissions:

$$\frac{35}{72}\ \frac{\text{ton bone-dry wood}}{\text{hr}} \times \frac{0.50\ \text{lb PM}}{\text{ton bone-dry wood}} = 0.24\ \text{lb/hr PM}$$

Maximum Annual PM emissions:

$$998\ \frac{\text{ton bone-dry wood}}{\text{yr}} \times \frac{0.50\ \text{lb PM}}{\text{ton bone-dry wood}} \times \frac{1\ \text{ton}}{2000\ \text{lb}} = 0.25\ \text{tpy PM}$$

Maximum Hourly PM10 emissions:

$$\frac{35}{72}\ \frac{\text{ton bone-dry wood}}{\text{hr}} \times \frac{0.25\ \text{lb PM10}}{\text{ton bone-dry wood}} = 0.12\ \text{lb/hr PM10}$$

Maximum Annual PM10 emissions:

$$998\ \frac{\text{ton bone-dry wood}}{\text{yr}} \times \frac{0.25\ \text{lb PM10}}{\text{ton bone-dry wood}} \times \frac{1\ \text{ton}}{2000\ \text{lb}} = 0.12\ \text{tpy PM10}$$

Treasure Valley Forest Products - Lodge Logs

Pole Cyclone Chip Bin

Capacity of bin is 2800 cubic feet. Each bin will be filled every 9 days of operation (not continuously).
Wood is 15% moisture
Bulk density of wood is equal to the density of dry wood (2.056 lb/bd-ft) divided by the moisture content of the wood.

Bulk density: 29 lb/cf

Maximum hourly production rate: $\frac{35}{72}$ $\frac{\text{ton bone-dry wood}}{\text{hr}}$

Maximum annual production rate: 998 $\frac{\text{ton bone-dry wood}}{\text{yr}}$

AP-42 Section 13.2.4 (Aggregate Handling and Storage Piles)

Wind Speed	3.5	mph
Material moisture content	4.3	%
PM Particle size multiplier	0.74	
PM =	0.001	lb/ton bone-dry wood
PM10 Particle size multiplie	0.35	
PM10 =	0.001	lb/ton bone-dry wood

Division of Environmental Protection, Office of Air Quality for West Virginia, Reference Document for General Permit Number G10-B, for the construction, modification, relocation, operation, and prevention and control of air pollution from the operation of coal preparation plants and coal handling operations

Control Factor = 70% Based on full enclosure from truck

Potential Emissions

Pole Cyclone Chip Bin	lb/hr	tpy
PM	0.0005	0.0005
PM10	0.0002	0.0002

Potential Emissions Calculations:

Maximum Hourly PM emissions:

$$\frac{35}{72}\ \frac{\text{ton bone-dry wood}}{\text{hr}} \times \frac{0.001\ \text{lb PM}}{\text{ton bone-dry wood}} \times 70\% = 0.0005\ \text{lb/hr PM}$$

Maximum Annual PM emissions:

$$998\ \frac{\text{ton bone-dry wood}}{\text{yr}} \times \frac{0.001\ \text{lb PM}}{\text{ton bone-dry wood}} \times \frac{1\ \text{ton}}{2000\ \text{lb}} \times 70\% = 0.0005\ \text{tpy PM}$$

Maximum Hourly PM10 emissions:

$$\frac{35}{72}\ \frac{\text{ton bone-dry wood}}{\text{hr}} \times \frac{0.001\ \text{lb PM10}}{\text{ton bone-dry wood}} \times 70\% = 0.0002\ \text{lb/hr PM10}$$

Maximum Annual PM10 emissions:

$$998\ \frac{\text{ton bone-dry wood}}{\text{yr}} \times \frac{0.001\ \text{lb PM10}}{\text{ton bone-dry wood}} \times \frac{1\ \text{ton}}{2000\ \text{lb}} \times 70\% = 0.0002\ \text{tpy PM10}$$

Treasure Valley Forest Products - Lodge Logs

Sawmill Sawdust Bin

Capacity of bin is 14 units or 2800 cubic feet. Each bin will be filled every 40 hours of operation (not continuosly).
Wood is 35% moisture
Bulk density of wood is equal to the density of dry wood (2.056 lb/bd-ft) divided by the moisture content of the wood.

Bulk density: 38 lb/cf

Maximum hourly production rate: $\frac{35}{40}$ $\frac{\text{ton bone-dry wood}}{\text{hr}}$

Maximum annual production rate: 1,796 $\frac{\text{ton bone-dry wood}}{\text{yr}}$

AP-42 Section 13.2.4 (Aggregate Handling and Storage Piles)

Wind Speed	3.5	mph
Material moisture content	4.3	%
PM Particle size multiplier	0.74	
PM =	0.001	lb/ton bone-dry wood
PM10 Particle size multiplier	0.35	
PM10 =	0.001	lb/ton bone-dry wood

Division of Environmental Protection, Office of Air Quality for West Virginia, Reference Document for General Permit Number G10-B, for the construction, modification, relocation, operation, and prevention and control of air pollution from the operation of coal preparation plants and coal handling operations

Control Factor = 70% Based on full enclosure from truck

Potential Emissions

Sawmill Sawdust Bin	lb/hr	tpy
PM	0.001	0.001
PM10	0.0004	0.0004

Potential Emissions Calculations:

Maximum Hourly PM emissions:

$$\frac{35}{40}\ \frac{\text{ton bone-dry wood}}{\text{hr}} \times \frac{0.001\ \text{lb PM}}{\text{ton bone-dry wood}} \times 70\% = 0.001\ \text{lb/hr PM}$$

Maximum Annual PM emissions:

$$1{,}796\ \frac{\text{ton bone-dry wood}}{\text{yr}} \times \frac{0.001\ \text{lb PM}}{\text{ton bone-dry wood}} \times \frac{1\ \text{ton}}{2000\ \text{lb}} \times 70\% = 0.001\ \text{tpy PM}$$

Maximum Hourly PM10 emissions:

$$\frac{35}{40}\ \frac{\text{ton bone-dry wood}}{\text{hr}} \times \frac{0.001\ \text{lb PM10}}{\text{ton bone-dry wood}} \times 70\% = 0.0004\ \text{lb/hr PM10}$$

Maximum Annual PM10 emissions:

$$1{,}796\ \frac{\text{ton bone-dry wood}}{\text{yr}} \times \frac{0.001\ \text{lb PM10}}{\text{ton bone-dry wood}} \times \frac{1\ \text{ton}}{2000\ \text{lb}} \times 70\% = 0.0004\ \text{tpy PM10}$$

Treasure Valley Forest Products - Lodge Logs

Sawmill Chip Bin 1

Capacity of bin is 30 units or 6000 cubic feet. Each bin will be filled every 40 hours of operation (not continuosly).
Wood is 35% moisture
Bulk density of wood is equal to the density of dry wood (2.056 lb/bd-ft) divided by the moisture content of the wood.

Bulk density: 38 lb/cf

Maximum hourly production rate: $\frac{74}{40}$ $\frac{\text{ton bone-dry wood}}{\text{hr}}$

Maximum annual production rate: 3,849 $\frac{\text{ton bone-dry wood}}{\text{yr}}$

AP-42 Section 13.2.4 (Aggregate Handling and Storage Piles)

Wind Speed	3.5	mph
Material moisture content	4.3	%
PM Particle size multiplier	0.74	
PM =	0.001	lb/ton bone-dry wood
PM10 Particle size multiplier	0.35	
PM10 =	0.001	lb/ton bone-dry wood

Division of Environmental Protection, Office of Air Quality for West Virginia, Reference Document for General Permit Number G10-B, for the construction, modification, relocation, operation, and prevention and control of air pollution from the operation of coal preparation plants and coal handling operations

Control Factor = 70% Based on full enclosure from truck

Potential Emissions

Sawmill Chip Bin 1	lb/hr	tpy
PM	0.002	0.002
PM10	0.001	0.001

Potential Emissions Calculations:

Maximum Hourly PM emissions:

$$\frac{74}{40}\ \frac{\text{ton bone-dry wood}}{\text{hr}} \times \frac{0.00\ \text{lb PM}}{\text{ton bone-dry wood}} \times 70\% = 0.002\ \text{lb/hr PM}$$

Maximum Annual PM emissions:

$$3{,}849\ \frac{\text{ton bone-dry wood}}{\text{yr}} \times \frac{0.00\ \text{lb PM}}{\text{ton bone-dry wood}} \times 70\% \times \frac{1\ \text{ton}}{2000\ \text{lb}} = 0.002\ \text{tpy PM}$$

Maximum Hourly PM10 emissions:

$$\frac{74}{40}\ \frac{\text{ton bone-dry wood}}{\text{hr}} \times \frac{0.00\ \text{lb PM10}}{\text{ton bone-dry wood}} \times 70\% = 0.001\ \text{lb/hr PM10}$$

Maximum Annual PM10 emissions:

$$3{,}849\ \frac{\text{ton bone-dry wood}}{\text{yr}} \times \frac{0.00\ \text{lb PM10}}{\text{ton bone-dry wood}} \times 70\% \times \frac{1\ \text{ton}}{2000\ \text{lb}} = 0.001\ \text{tpy PM10}$$

Treasure Valley Forest Products - Lodge Logs

Sawmill Chip Bin 2

Capacity of bin is 30 units or 6000 cubic feet. Each bin will be filled every 40 hours of operation (not continuosly).
Wood is 35% moisture
Bulk density of wood is equal to the density of dry wood (2.056 lb/bd-ft) divided by the moisture content of the wood.

Bulk density: 38 lb/cf

Maximum hourly production rate: $\frac{74}{40}$ $\frac{\text{ton bone-dry wood}}{\text{hr}}$

Maximum annual production rate: 3,849 $\frac{\text{ton bone-dry wood}}{\text{yr}}$

AP-42 Section 13.2.4 (Aggregate Handling and Storage Piles)

Wind Speed	3.5	mph
Material moisture content	4.3	%
PM Particle size multiplier	0.74	
PM =	0.001	lb/ton bone-dry wood
PM10 Particle size multiplier	0.35	
PM10 =	0.001	lb/ton bone-dry wood

Division of Environmental Protection, Office of Air Quality for West Virginia, Reference Document for General Permit Number G10-B, for the construction, modification, relocation, operation, and prevention and control of air pollution from the operation of coal preparation plants and coal handling operations

Control Factor = 70% Based on full enclosure from truck

Potential Emissions

Sawmill Chip Bin 2	lb/hr	tpy
PM	0.002	0.002
PM10	0.001	0.001

Potential Emissions Calculations:

Maximum Hourly PM emissions:

$$\frac{74}{40}\ \frac{\text{ton bone-dry wood}}{\text{hr}} \times \frac{0.00\ \text{lb PM}}{\text{ton bone-dry wood}} \times 70\% = 0.002\ \text{lb/hr PM}$$

Maximum Annual PM emissions:

$$3{,}849\ \frac{\text{ton bone-dry wood}}{\text{yr}} \times \frac{0.00\ \text{lb PM}}{\text{ton bone-dry wood}} \times 70\% \times \frac{1\ \text{ton}}{2000\ \text{lb}} = 0.002\ \text{tpy PM}$$

Maximum Hourly PM10 emissions:

$$\frac{74}{40}\ \frac{\text{ton bone-dry wood}}{\text{hr}} \times \frac{0.00\ \text{lb PM10}}{\text{ton bone-dry wood}} \times 70\% = 0.001\ \text{lb/hr PM10}$$

Maximum Annual PM10 emissions:

$$3{,}849\ \frac{\text{ton bone-dry wood}}{\text{yr}} \times \frac{0.00\ \text{lb PM10}}{\text{ton bone-dry wood}} \times 70\% \times \frac{1\ \text{ton}}{2000\ \text{lb}} = 0.001\ \text{tpy PM10}$$

Treasure Valley Forest Products - Lodge Logs

Sawdust Pile

On occasion Lodge Logs will store sawdust and/or other wood residues in a small stockpile at the Site
Maximum rate of collection will be less than one 100 cubic yard (2700 cubic feet) truckload per week.
Wood is 15% moisture
Bulk density of wood is equal to the density of dry wood (2.056 lb/bd-ft) divided by the moisture content of the wood.

Bulk density: 29 lb/cf

Maximum hourly production rate: $\frac{33}{40}$ $\frac{\text{ton bone-dry wood}}{\text{hr}}$

Maximum annual production rate: 1,732 $\frac{\text{ton bone-dry wood}}{\text{yr}}$

Idaho DEQ Emission Factor Guide for Wood Industry (1/1997), Sawdust Pile

PM = 1 lb/ton bone-dry wood
PM10 = 0.36 lb/ton bone-dry wood

Potential Emissions

Sawdust Pile	lb/hr	tpy
PM	0.83	0.87
PM10	0.30	0.31

Potential Emissions Calculations:

Maximum Hourly PM emissions:

$$\frac{33}{40}\ \frac{\text{ton bone-dry wood}}{\text{hr}} \times \frac{1.00\ \text{lb PM}}{\text{ton bone-dry wood}} = 0.83\ \text{lb/hr PM}$$

Maximum Annual PM emissions:

$$1{,}732\ \frac{\text{ton bone-dry wood}}{\text{yr}} \times \frac{1.00\ \text{lb PM}}{\text{ton bone-dry wood}} \times \frac{1\ \text{ton}}{2000\ \text{lb}} = 0.87\ \text{tpy PM}$$

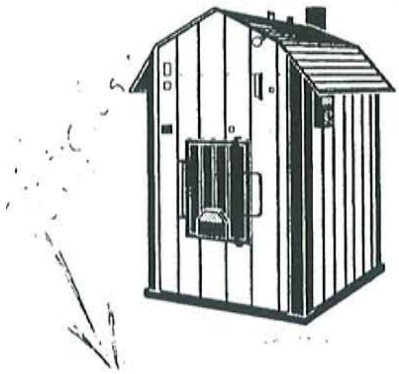
Maximum Hourly PM10 emissions:

$$\frac{33}{40}\ \frac{\text{ton bone-dry wood}}{\text{hr}} \times \frac{0.36\ \text{lb PM10}}{\text{ton bone-dry wood}} = 0.30\ \text{lb/hr PM10}$$

Maximum Annual PM10 emissions:

$$1{,}732\ \frac{\text{ton bone-dry wood}}{\text{yr}} \times \frac{0.36\ \text{lb PM10}}{\text{ton bone-dry wood}} \times \frac{1\ \text{ton}}{2000\ \text{lb}} = 0.31\ \text{tpy PM10}$$

▼ SPECIFICATIONS & PERFORMANCE ▼



Model CL 4436SB

Max. BTU 250,000
Door .....22" x 22"
Water Capacity .....170 Gallons
Draft Control .....Thermal Electric
Firebox .....30 x 36 x 42
Steel Thickness ...3/8", 1/4" & 7-Gauge
Heat Transfer Area .....64 Sq. Ft.
Weight .....1,500 Lbs.

Examples Of Actual Performance From Working Applications:

- Properly insulated 2,100 sq. ft. home, 48 hour burn time at **20°** to **30° below zero.**
- Properly insulated home and properly insulated garage, 24 hr. burn time.
- Two properly insulated homes, 24 hr. burn time.
- One older home with higher heat loss, 12 to 24 hr. burn time at -20° to -30°.
- Southern Climates!! up to 5 day burn time on properly insulated home.

Model CL 5648SB

Max. BTU .....500,000 BTU
Door .....22" x 30"
Water Capacity .....400 Gallons
Draft Control .....Thermal Electric
Firebox .....36 x 48 x 54
Steel Thickness ...3/8", 1/4" & 7-Gauge
Heat Transfer Area .....114 Sq. Ft.
Weight .....2,150 Lbs.

Examples Of Actual Performance From Working Applications:

- Properly insulated home, up to 96 hr. burn time at **20°** to **30° below zero.**
- Properly insulated home and properly insulated garage (shop) 48 hr. burn time.
- One older home with higher heat loss, 72 hr. burn time.
- One older home with higher heat loss and shop, 12 to 24 hr. burn time.
- Three properly insulated homes up to 24 hr. burn time.

Model CL 7260SB

Door .....30" x 40"
Water Capacity .....750 Gallons
Draft Control .....Thermal Electric
Firebox .....40 x 60 x 72
Steel Thickness ...3/8", 1/4" & 7-Gauge
Heat Transfer Area .....170 Sq. Ft.
Weight .....3,200 Lbs.

This is an outdoor wood furnace intended for more than residential heating.

Examples Of Actual Performance From Working Applications:

- 24,000 sq. ft. assembly building, 12 to 16 hr. burn time.
- Antique shop with warehouse and large home.
- Greenhouses
- Door factory
- Multiple homes and swimming pool.
- Twelve Mobile homes, etc.

Fan draft option available on all models.

Skid Base CL-4436SB And CL-5648SB:

- No cement pads or slab needed.
- Easier hook-up.
- Height to center of door is 35" on the CL 4436SB, and 39" on the CL 5648SB.

The Central Boiler Classic furnaces Models CL-4436, CL-5648, SCL-50 and CL-7260 are UL and CSA Listed.

10-YEAR WARRANTY

Highest Delivered Efficiency And Lowest Emissions In EPA Accredited Lab Tests*

* Test results available from Central Boiler to authorized regulatory bodies.

EPA

United States
Environmental Protection
Agency

National Risk Management
Research Laboratory
Cincinnati, OH 45268

Research and Development | EPA/600/SR-98/017 | February 1998

Project Summary

Emissions from Outdoor Wood-Burning Residential Hot Water Furnaces

...resented. Compared to a wide range ... residential heating options, these fur...aces' emissions were of the same order as other stick wood burning appli...nces.

This Project Summary was developed ... the National Risk Management Research Laboratory's Air Pollution Prevention and Control Division, Research ...iangle Park, NC, to announce key ...idings of the research project that is fully documented in a separate report ...f the same title (see Project Report ...dering information at back).

Furnace/Test/ Condition	Wood Load (wet lbs)	Coal Bed (lbs)	Moisture (% dry basis)	Average Burnrate (dry kg/hr)	Average Delivered Efficiency (%)	Particulate, EPA Method 5G				
						g/hr	g/kg of dry fuel	mg/Btu output	mg/MJ output	mg/MJ input
Furnace B/B-1/high heat removal	133.0	29.5	23.7	3.36	50.5	36.5	10.8	1.21	1145	579
Furnace B/B-2/high heat removal	136.9	29.5	23.7	2.84	57.1	37.6	13.3	1.31 .30	1238	707
Furnace B/B-3/low heat removal	125.3	28.0	24.7	1.51	55.4	14.3	9.5	0.96	911	505
Furnace B/B-4/low heat removal	139.5	28.0	23.6	1.68	55.1	15.5	9.2	0.94	892	491

Table 1. Comparison of average particulate emission factors (5H adjusted) to AP-42 values.

Stove Group	Method 5H Equivalent Emission Factor g/kg (Dry)
Catalytic Stoves (5 Stoves, 13 Runs)	10.8
Noncatalytic Stoves (11 Stoves, 30 Runs)	9.23
Catalytic	8.1
Noncatalytic	7.3
Conventional	15.3

EPA

United States
Environmental Protection
Agency

National Risk Management
Research Laboratory
Cincinnati, OH 45268

Research and Development | EPA/600/SR-00/100 | December 2000

Project Summary

Long-Term Performance of EPA-Certified Phase 2 Woodstoves, Klamath Falls and Portland, Oregon: 1998/1999

Foreword regarding EPA reports, EPA-600/R-98-017 and EPA/600/SR-00/100

A summary of the EPA reports, EPA-600/R-98-017 and EPA/600/SR-00/100 is enclosed. Please note that Furnace B in this report is a Central Boiler outdoor wood furnace.

On the Project Summary under the section labeled "Results", note that it states; "Furnace B showed much less variability in operation and emissions data compared to Furnace A." Therefore, this data should be viewed as a reliable representation of emissions from this unit when used for home heating. Also under the section labeled "Conclusions" it is stated, "There were several data quality problems with tests of Furnace A..." "Tests of Furnace B had no reported data quality problems." This is confirmed in the report, Table 4-1a, Summary of Test Results - Furnaces A and B Comparative Data. When reviewing this data it is important to understand that there were problems with the testing of Furnace A and that during Test A-3/high heat removal, the g/hr emissions equaled 234% of Test A-4/high heat removal, which makes this data not reliable. These tests were supposed to be duplications of the same heat removal to confirm emissions data. Also note on Furnace A during Test A-5/low heat removal, the g/hr emissions equaled 120% of Test A-6/low heat removal. With this much difference it is clear to see the emissions reported are far from being accurate in the tests on Furnace A. Please note that the tests of Furnace B were consistent and showed reliable data. This test data is a good representation of emissions.

TABLE 4-1a. SUMMARY OF TEST RESULTS - FURNACES A AND B COMPARATIVE DATA.

Furnace/Test/ Condition	Wood Load (wet lbs)	Coal Bed (lbs)	Moisture (% dry basis)	Average Burnrate (dry kg/hr)	Average Delivered Efficiency (%)	Particulate, EPA Method 5G				
						g/hr	g/kg of dry fuel	mg/Btu output	mg/MJ output	mg/MJ input
Furnace A/A-3/high heat removal	87.0	21.3	23.9	5.86	38.8	143.2	24.5	3.55	3361	1305
Furnace A/A-4/high heat removal	81.2	12.0	22.1	4.11	53.4	61.0	14.8	1.56	1482	791
Furnace A/A-5/low heat removal[a]	80.5	30.0	21.8	2.42	46.4	38.5	15.9	1.93	1829	849
Furnace A/A-6/low heat removal[a]	83.0	18.5	20.4	2.81	42.4	48.6	17.3	2.30	2177	924
Furnace B/B-1/high heat removal	133.0	29.5	23.7	3.36	50.5	36.5	10.8	1.21	1145	579
Furnace B/B-2/high heat removal	136.9	29.5	23.7	2.84	57.1	37.6	13.3	1.31	1238	707
Furnace B/B-3/low heat removal	125.3	28.0	24.7	1.51	55.4	14.3	9.5	0.96	911	505
Furnace B/B-4/low heat removal	139.5	28.0	23.6	1.68	55.1	15.5	9.2	0.94	892	491

a. Weigh scale data suspect; per hour data therefore suspect. Per kg and per heat unit data not as likely to have been affected.

BOILER ON WOOD FUEL								
Higher Heating Value, dry =	9,000	Btu/#, dry						
Moisture Content =	15	%, wet basis						
Higher Heating Value, as-fired	7,650							
% Excess Air =	100.0	%						
Fuel Rate =	7.29	Pounds/hr, as-fired						
Fuel Rate =	0.056	MM Btu/hr (HHV basis)						
Annual Operation on Fuel Oil=	8760	Hours/yr =	365.00	Days/yr				
Stack Temperature =	350	degrees F						
Stack Temperature =	350	degrees F						
Component	Std. ft3 per	% by Vol.	% by Vol.	Density at STP	Mass Flowrate	Cp	Mass Flow*	
Prod. of Comb.	100 # Fuel	Wet Basis	Dry Basis	# per ft3	# per hour	Btu/#-Degree F	Cp	#/# AFF
Carbon Dioxide(CO2)	1414.5	9.18	10.03	0.1140	12	0.26	3	1.61
Water Vapor(H2O)	1308.7	8.49	NA	0.0466	4	0.47	2	0.61
Oxygen(O2)	1480.3	9.61	10.50	0.0839	9	0.24	2	1.24
Nitrogen(N2)	11205.7	72.72	79.47	0.0724	59	0.25	15	8.11
Sulfur Dioxide(SO2)	0.0	0.00	0.00	0.1655	0	0.16	0	0.00
TOTAL	15409.2	100.00	100.00	0.0751	84	0.26	22	11.58
Exhaust Gas Flow =	29	ACFM						
	19	SCFM						
	17	SDCFM						
Steam Gen. Stack Dia.=	12	inches						
Steam Gen. Stack Vel.=	36	feet/minute						
Comb. Air Spec. Hum.=	0.0063	#H2O/#Dry Air						
Water/Fuel Mass Ratio =	0	#H2O/#Fuel						
Fuel Moisture Content, %	15							
				Theoretical		Volume of mole	Theoretical	
	# per 100	Molecular	Moles per	Moles O2 Req'd		Ft3	Ft3 O2 CA/	
Fuel Component	# Fuel	Weight	100 # Fuel	per 100 # Fuel		at STP	100 # Fuel	
Carbon (C)	43.86	12	3.6550	3.6550		387.00	1414.49	
Hydrogen (H2)	5.10	2	2.5500	1.2750		387.00	493.43	
Oxygen (O2)	35.36	32	1.1050	-1.1050		387.00	-427.64	
Nitrogen (N2)	0.17	28	0.0061	0.0000		387.00	0.00	
Sulfur (S)	0	32	0.0000	0.0000		387.00	0.00	
Ash	0.51	NA		0.0000		387.00	0.00	
Moisture (H2O)	15.00	18	0.8333	0.0000		387.00	0.00	
TOTAL	100.00		8.1494	3.8250			1480	
O2 in Comb. Air =	4	Std. ft3/min.						
Total Dry Comb. Air =	17	Std. ft3/min.			Dry O2 in CA/			
	77	Pounds per Hour			100 # Fuel =	2960.6	ft3	
H2O in Comb. Air =	0	Pounds per Hour						
					Dry Comb. Air/			
Total Wet Comb. Air =	78	Pounds per Hour			100 # Fuel =	14166.2	ft3	
					Dry Comb. Air/			
					100 # Fuel =	1062.5	pounds	
					H2O in CA/			
					100 # Fuel =	6.7	pounds	
						140.6	Std. ft3	
					Total CA/			
					100 # Fuel =	1069.2	pounds	

ncasi

NATIONAL COUNCIL FOR AIR AND STREAM IMPROVEMENT

COMPILATION OF 'AIR TOXIC' AND TOTAL HYDROCARBON EMISSIONS DATA FOR SOURCES AT KRAFT, SULFITE AND NON-CHEMICAL PULP MILLS – AN UPDATE

TECHNICAL BULLETIN NO. 858

FEBRUARY 2003

by
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Southern Regional Center
Gainesville, Florida

Table A-20 (Cont'd). 'Air Toxic' Emissions from Combination Boilers in the Pulp & Paper Industry

Boiler Code	Date of Sampling	No. of Runs	Description of Source	Gas Flow Rate, acfm	Gas Flow Rate, dscfm	Gas Temp (deg. F)	% H_2O in Vent	% O_2 in Vent	MM* Btu/hr	dscfm/ MMBtu
BBE1	NK	NK	1971 Power Boiler No. 1; 319 MM Btu/hr; Venturi Scrubber bark:nat gas::67:33 - Btu basis		68,774				319.0	215.6
				*assumed 9222 dscf/MM Btu for wood/gas firing & 6% O2 in stack						
BBE2	NK	NK	1979 Power Boiler No. 2; 526 MM Btu/hr; coal:bark:nat gas::47.4:47.8:4.8 - Btu basis; pulverized coal firing - low NOx burners; ESP + SO2 Scrubber		118,001				526.0	224.3
				*assumed 9596 dscf/MM Btu for coal/wood/gas firing & 6% O2 in stack						
BBF1	11/89	3	1957 Power Boiler No. 2 340 MM Btu/hr; 250 KPPH; Cyclone w/ESP coal-fired boiler	150,093	78,510	402.3	14.6	11.4	219	358.2
				*assumed 9820dscf/MM Btu for coal firing						
BBF2	11/89	3	1986 Power Boiler No. 4; 445 MM Btu/hr; 325 KPPH; Spreader Stoker w/ESP coal:wood::93:7 - Btu basis	77,190	47,090	325.0	9.3	3.9	234	201.2
				*assumed 9820dscf/MM Btu for coal firing & 325 deg F stack gas temp.						
BBG1	04/90	3	Package Boiler; 422 gal/hr No. 6 oil, 154,466 Btu/gal	41,377	19,257	558.7	6.6	10.3	65	295.4
BBG2	04/90	3	Power Boiler; 2570 gal/hr No. 6 oil, 153,811 Btu/gal	189,000	104,463	393.3	7.7	8.3	395	264.3
BBH1	07/85	2	Wood Waste Boiler; 286 MM Btu/hr; 30 ton/hr wood waste feed or 270 MM Btu/hr, rest natural gas (16 MM Btu/hr)		61,845				286	216.2
				*assumes 6% O2 in stack and uses F factors for wood residue and gas						
BBH2	07/85	1	Wood Waste Boiler; 286 MM Btu/hr; 20 ton/hr wood waste feed or 180 MM Btu/hr, rest natural gas (106 MM Btu/hr)		60,709				286	212.3
				*assumes 6% O2 in stack and uses F factors for wood residue and gas						
BBI	08/89	3	Combination Fuel Boiler; wood/coal/No. 2oil/gas (75.8:20.2:1.7:2.4) - heat basis PM control device - ESP	477,617	237,097	363.0	22.4		981	241.7
BBJ	07/92	3	No. 6 Power Boiler; 752 MM Btu/hr; 35.9% gas, rest woodwaste; 1986 spreader stoker, traveling grate w/MC & wet scrubber		121,800				753	161.8
				*assumes 6% O2 in stack and uses F factors for wood residue and gas						
BBK	04/96	3	Combination Fuel Boiler; bark/oil::620 MM Btu/hr; 45.0% bark, rest oil; PM control device - gravel bed filter	365,875	200,000	390.0	12.0	10.5	620	322.6

Note : *All italicized entries correspond to non-detect values at one-half the detection limit*

Table A-20 (Cont'd). 'Air Toxic' Emissions from Combination Boilers in the Pulp & Paper Industry

Boiler Code	VOC or Trace Metal	Units	Units	Units	Comments
			lb/hr	lb/10^{12} Btu	
BBC	Ni		3.2E-02	110	coal/bark
	Sb		6.5E-03	22	coal/bark
	As		3.0E-02	100	coal/bark
	Be		1.1E-03	3.8	coal/bark
	Cd		5.6E-03	19	coal/bark
	Cr VI		2.5E-02	84	coal/bark
	Co		1.1E-02	36	coal/bark
	Pb		9.1E-02	310	coal/bark
	Mn		1.7E-01	590	coal/bark
	Se		7.1E-03	24	coal/bark
	P		9.7E-01	3300	coal/bark
			lb/hr	lb/MM Btu	
BBD	PM		35.81	5.3E-02	coal/oil/wd/sludge/TDF
	SO2		335.45	4.9E-01	coal/oil/wd/sludge/TDF
	Nox		187.59	2.8E-01	coal/oil/wd/sludge/TDF
	VOC		1.21	1.8E-03	coal/oil/wd/sludge/TDF
			lb/hr	lb/10^{12} Btu	
	Be		6.4E-04	0.94	coal/oil/wd/sludge/TDF
	Cd		6.3E-04	0.93	coal/oil/wd/sludge/TDF
	Cr		6.8E-03	9.96	coal/oil/wd/sludge/TDF
	Pb		3.4E-03	5.00	coal/oil/wd/sludge/TDF
	Zn		8.8E-01	1,295.25	coal/oil/wd/sludge/TDF
			lb/hr	lb/MM Btu	
BBE1	THC		2.39	7.5E-03	bark/nat. gas
	HCHO		0.02	7.0E-05	bark/nat. gas
	HCl		1.43	4.5E-03	bark/nat. gas
			lb/hr	lb/10^{12} Btu	
BBE1	Cd		3.4E-04	1.07	bark/nat. gas
	Cr		1.1E-03	3.31	bark/nat. gas
	Co		7.8E-04	2.44	bark/nat. gas
	Pb		9.9E-03	31.00	bark/nat. gas
	Mn		3.9E-02	123.00	bark/nat. gas
	Hg		2.0E-04	0.62	bark/nat. gas
			lb/hr	lb/MM Btu	
BBE2	THC		21.88	4.2E-02	bark/nat. gas
	HCHO		0.04	8.3E-05	bark/nat. gas
	HCl		0.15	2.8E-04	bark/nat. gas
	Acetaldehyde		0.53	1.0E-03	bark/nat. gas
	Methanol		0.78	1.5E-03	bark/nat. gas
	MEK		0.29	5.5E-04	bark/nat. gas
	Benzene		0.10	1.9E-04	bark/nat. gas
	o-xylene		0.07	1.4E-04	bark/nat. gas

Note : *All italicized entries correspond to non-detect values at one-half the detection limit*

Table A-20 (Cont'd). 'Air Toxic' Emissions from Combination Boilers in the Pulp & Paper Industry

Boiler Code	VOC or Trace Metal	Units	Units	Units	Comments
			lb/hr	lb/10^{12} Btu	
BBE2	Cd		1.4E-03	2.59	bark/nat. gas
	Cr		9.8E-03	18.7	bark/nat. gas
	Co		1.2E-03	2.2	bark/nat. gas
	Pb		2.9E-03	5.58	bark/nat. gas
	Mn		2.8E-02	52.3	bark/nat. gas
	Hg		no data	no data	bark/nat. gas
	Sb		8.9E-04	1.7	bark/nat. gas
	As		3.1E-03	5.89	bark/nat. gas
	Be		1.1E-04	0.213	bark/nat. gas
	Ni		6.5E-03	12.4	bark/nat. gas
			lb/hr	lb/10^{12} Btu	
BBF1	As		1.9E-03	8.75	coal
	Be		9.4E-05	0.43	coal
	HCHO		6.7E-02	305.37	coal
			lb/hr	lb/MM Btu	
BBF2	HCHO		0.00482	2.05957E-05	coal/wood
			lb/hr	lb/10^{12} Btu	
BBG1	As		2.1E-05	0.32	No. 6 oil
	Cd		2.4E-04	3.61	No. 6 oil
	Ni		1.6E-02	249.55	No. 6 oil
	HCHO		7.3E-04	11.19	No. 6 oil
			lb/hr	lb/10^{12} Btu	No. 6 oil
BBG2	As		2.3E-04	0.57	No. 6 oil
	Cd		2.0E-03	5.16	No. 6 oil
	Ni		6.6E-02	165.95	No. 6 oil
	HCHO		1.8E-02	45.66	No. 6 oil
		ppb		lb/MM Btu	
BBH1	TNMHC	2655		1.1E-03	wood/natural gas
	a-pinene	1.46		6.7E-06	wood/natural gas
	benzene	50.4		1.3E-04	wood/natural gas
	toluene	10.3		3.2E-05	wood/natural gas
	m,p-xylene	2.14		7.7E-06	wood/natural gas
	o-xylene	0.42		1.5E-06	wood/natural gas
	1,2,4-trimethylbenzene	1.29		5.2E-06	wood/natural gas
	butryaldehyde	2.38		5.8E-06	wood/natural gas

Note : *All italicized entries correspond to non-detect values at one-half the detection limit*

Table A-20 (Cont'd). 'Air Toxic' Emissions from Combination Boilers in the Pulp & Paper Industry

Boiler Code	VOC or Trace Metal	Units	Units	Units	Comments
		ppb		lb/MM Btu	
BBH2	TNMHC	5166		2.0E-03	wood/natural gas
	a-pinene	ND		0.0E+00	wood/natural gas
	benzene	132		3.4E-04	wood/natural gas
	toluene	29.8		9.1E-05	wood/natural gas
	m,p-xylene	5.85		2.1E-05	wood/natural gas
	o-xylene	1.38		4.8E-06	wood/natural gas
	1,2,4-trimethylbenzene	9.56		3.8E-05	wood/natural gas
	butryaldehyde	ND		ND	wood/natural gas
		ppm	lb/hr	lb/MM Btu	
BBI	TGNMO	200	88.61	9.0E-02	wood/coal/No. 2 oil/gas
			lb/hr	lb/10^{12} Btu	
BBI	As		0.02	17.23	wood/coal/No. 2 oil/gas
	Ba		1.96	2,052.36	wood/coal/No. 2 oil/gas
	Be		0.00	2.36	wood/coal/No. 2 oil/gas
	Cd		ND	ND	wood/coal/No. 2 oil/gas
	Cr		0.00	3.05	wood/coal/No. 2 oil/gas
	Cu		0.03	26.92	wood/coal/No. 2 oil/gas
	Pb		0.01	9.57	wood/coal/No. 2 oil/gas
	Mn		0.12	128.26	wood/coal/No. 2 oil/gas
	Hg		0.00	0.58	wood/coal/No. 2 oil/gas
	Ni		ND	0.00	wood/coal/No. 2 oil/gas
	Zn		0.51	530.89	wood/coal/No. 2 oil/gas
	Fl		4.1E-01	4.3E+02	wood/coal/No. 2 oil/gas
			lb/hr	lb/MM Btu	
BBJ	methanol		0.75	1.0E-03	wood/natural gas
	ethanol		0.25	3.3E-04	wood/natural gas
	acetone		0.35	4.7E-04	wood/natural gas
	2-propanol		0.35	4.7E-04	wood/natural gas
	2-butanone		0.4	5.3E-04	wood/natural gas
	chloroform		1.35	1.8E-03	wood/natural gas
	benzene		0.45	6.0E-04	wood/natural gas
	bromodichloromethane		1.9	2.5E-03	wood/natural gas
	toluene		0.55	7.3E-04	wood/natural gas
	ethyl benzene		0.6	8.0E-04	wood/natural gas
	m, p-xylene		0.6	8.0E-04	wood/natural gas
	o-xylene		0.6	8.0E-04	wood/natural gas
	cumene		0.7	9.3E-04	wood/natural gas
	alpha-pinene		0.8	1.1E-03	wood/natural gas
	beta-pinene		1.1	1.5E-03	wood/natural gas
	3-carene		0.8	1.1E-03	wood/natural gas
	terpenes		0.8	1.1E-03	wood/natural gas
	p-cymene		1.5	2.0E-03	wood/natural gas
	HCHO		0.4	5.3E-04	wood/natural gas

Note : *All italicized entries correspond to non-detect values at one-half the detection limit*

Table A-20 (Cont'd). 'Air Toxic' Emissions from Combination Boilers in the Pulp & Paper Industry

Boiler Code	VOC or Trace Metal	Units	Units	Units	Comments
BBJ, contd	acetaldehyde		0.2	2.7E-04	wood/natural gas
	acetophenone		0.55	7.3E-04	wood/natural gas
	MIBK		0.45	6.0E-04	wood/natural gas
	acrolein		0.25	3.3E-04	wood/natural gas
	benzaldehyde		0.5	6.6E-04	wood/natural gas
	THC		11.85	1.6E-02	wood/natural gas
			lb/hr	lb/10^{12} Btu	
BBJ	Sb		1.3E-03	1.66	wood/natural gas
	As		1.3E-03	1.66	wood/natural gas
	Ba		1.0E+00	1,328.73	wood/natural gas
	Be		1.3E-03	1.66	wood/natural gas
	Cd		1.3E-03	1.66	wood/natural gas
	Cr		5.9E-03	7.84	wood/natural gas
	Cu		4.8E-03	6.38	wood/natural gas
	Pb		7.3E-03	9.70	wood/natural gas
	Mn		3.3E+00	4,318.36	wood/natural gas
	Hg		1.3E-03	1.66	wood/natural gas
	Ni		6.1E-03	8.11	wood/natural gas
	P		9.3E-02	123.57	wood/natural gas
	Ag		4.4E-03	5.85	wood/natural gas
	Se		1.3E-03	1.66	wood/natural gas
	Tl		1.3E-03	1.66	wood/natural gas
			lb/hr	lb/10^{12} Btu	
BBK	Sb		1.2E-03	1.91	bark/oil
	As		2.9E-04	0.469	bark/oil
	Be		9.9E-05	0.16	bark/oil
	Cd		1.6E-03	2.58	bark/oil
	Cr		1.6E-02	25.2	bark/oil
	Co		1.5E-03	2.47	bark/oil
	Pb		4.3E-02	69	bark/oil
	Mn		1.3E-01	214	bark/oil
	Hg		6.8E-04	1.1	bark/oil
	Ni		1.5E-01	248	bark/oil
	Se		3.1E-04	0.505	bark/oil
	P		4.5E-01	719	bark/oil
	PM, gr/dscf	3.2E-02			bark/oil

Note : *All italicized entries correspond to non-detect values at one-half the detection limit*

CHAPTER 3: WOOD DRYING

3.1 INTRODUCTION

Removal of moisture is an important step in the manufacturing process for lumber and panels. The nominal water content of green wood following harvesting is on the order of 50%, wet basis (100% dry basis). The amount of water that must be removed and the equipment used for its removal are product-dependent. The main dryer types are rotary, conveyer, tube, veneer, and kilns.

3.2 DRYING EQUIPMENT

3.2.1 Rotary Dryers

Rotary dryers are used to reduce the moisture level in wood furnish material, primarily at particleboard and OSB plants and occasionally at MDF and dry process hardboard plants. The material is injected into a turbulent hot air stream inside a large horizontal rotating cylinder. Diameters range from 10 to 15 ft and lengths from 70 to 100 ft. As the wood material is heated, water moves to the surface where it evaporates. The dryer design facilitates intimate contact of the material with the air stream such that the desired moisture removal can be accomplished within a relatively short time, ranging from a few seconds to a few minutes depending on the size of the material, initial moisture content, and target final moisture level. The hot air is usually provided by combusting wood fuel or natural gas, although propane or fuel oil may occasionally be used. If necessary, the combustion gases can be mixed with cooler air to achieve the proper dryer gas inlet temperature. A small number of dryers use steam coils to heat the incoming air. Dryers using combustion gases are referred to as direct-fired dryers, while those using steam are referred to as indirect-fired dyers. For green material, inlet temperatures fall in the range of 800 to 1600°F, while temperatures under 600°F are adequate for material that has already been partially dried, such as planer shavings. Dryer exit temperatures are typically between 200 and 250°F.

The two main types of rotary dryers currently in use are the single pass and the triple pass. In the single pass design, the turbulent air stream passes lengthwise from the front to the rear of the rotating dryer. The triple pass dryer has internal baffling so that the material and hot gases entering the rotating dryer are forced through a center section to the other end, where they make a 180° turn into the middle section which surrounds the center section. They return to the inlet end, make another 180° turn to the outermost section, and then travel to the outlet end. Temperatures and velocities are greatest in the first section and then decline in the next two sections. In both dryer types, care must be taken to achieve the required amount of moisture removal without charring the wood material.

Since OSB furnish is prepared on-site by flaking logs, the strands have initial moisture contents on the order of 30 to 50% (wet basis), and the target final moisture content is typically between 2 and 6%. Particleboard furnish includes planer shavings, sawdust, chips, lumber scraps, and panel trim. Normally the drier material is separated from green material to facilitate proper drying. Some plants perform the drying in two steps, with a pre-dryer removing a limited amount of moisture followed by a final, or secondary, dryer, to accomplish the remainder of the needed removal.

The majority of particulate matter from veneer dryers and lumber kilns is associated with wood fuel combustion, although some condensible (measured as "filterable" by EPA Method 5) particulate matter can originate from the wood being dried.

Table 3.3.1.2-1 shows uncontrolled "filterable" particulate emissions from different types of wood dryers. For tube and rotary dryers, "uncontrolled" refers to levels measured following the product cyclone.

Table 3.3.1.2-1 Uncontrolled Filterable Particulate Emissions

PRODUCT	DRYER TYPE	No. of UNITS	RANGE			MEDIAN	UNITS
HB	Tube	1				1.9	lb/ODT
MDF	Tube	10	0.62	to	1.6	2.2	lb/ODT
OSB	Conveyer	1	0.64	to	0.84	0.72	lb/ODT
OSB	Rotary	15	1.1	to	8.0	4.4	lb/ODT
PB	Rotary	16	0.17	to	6.5	1.4	lb/ODT
SW-PLY	Veneer	8	0.03	to	0.58	0.20	lb/$MSF_{3/8}$
Lumber	Kiln – Steam Heated	3	0.002	to	0.17	0.009	lb/MBF
Lumber	Kiln – Direct Fired Wood	7	0.02	to	1.3	0.32	lb/MBF

Product: HB – hardboard; PB – particleboard; MDF – medium density fiberboard; OSB – oriented strandboard; SW-PLY – softwood plywood; Lumber – all data for kilns drying Southern yellow pine
Units: lb/ODT = lb per oven dry ton of wood; lb/MSF 3/8 = lb per thousand square feet of veneer dried adjusted to a thickness of 3/8 inch; lb/MBF – lb per thousand board feet

EPA has compiled particulate emission test data for panel plant wood dryers. The filterable particulate emission factors contained in the EPA AP-42 document for uncontrolled dryers are shown in Table 3.3.1.2-2 to illustrate the differences that can arise when different approaches are used to summarize emission test data (See Section 3.3.1.1). In AP-42, both filterable and condensible (see Section 9.2.2.6.2) particulate matter emission factors are provided.

Table 3.3.1.2-2 Uncontrolled Filterable Particulate Emission Factors from AP-42

PRODUCT	DRYER TYPE	HEAT SOURCE	SPECIES	AVERAGE	UNITS
HB	Tube	gas	HW	1.9	lb/ODT
MDF	Tube	wood	SW	10.4	lb/ODT
OSB	Conveyer	steam	HW	0.72	lb/ODT
OSB	Rotary	wood	SW	4.1	lb/ODT
OSB	Rotary	wood	HW	4.2	lb/ODT
OSB	Rotary	wood	MIXED	4.7	lb/ODT
PB	Rotary	wood	HW	3.3	lb/ODT
PB	Rotary	wood	SW	3.4	lb/ODT
PB	Rotary	wood	MIXED	2.2	lb/ODT
PB	Rotary	wood	SW (green)	2.2	lb/ODT
PB	Rotary	gas	SW	0.42	lb/ODT
SW-PLY	Veneer	steam	SW	0.35	lb/$MSF_{3/8}$
SW-PLY	Veneer	gas	SW	0.08	lb/$MSF_{3/8}$
SW-PLY	Veneer	wood	SW	0.24	lb/$MSF_{3/8}$

Product: HB – hardboard; PB – particleboard; MDF – medium density fiberboard; OSB – oriented strandboard; SW-PLY – softwood plywood
Units: lb/ODT = lb per oven dry ton of wood; lb/MSF 3/8 = lb per thousand square feet of veneer dried adjusted to a thickness of 3/8 inch

VOC data for wood dryers are presented in Table 3.3.1.1-3. All measurements were made with EPA Method 25A and are expressed in terms of carbon. Data have been segregated according to type of material being dried, dryer type, and wood species. Additional subdivision was made for tube dryers based on whether or not resin and waxes were present in the wood furnish. Also, rotary dryers for particleboard furnish were subdivided based on the incoming wood moisture content. The range in VOC emissions is considerable, even within subdivisions.

Table 3.3.1.1-3 Method 25A VOC Emissions Data for Wood Dryers

PRODUCT	DRYER TYPE	WOOD SPECIES	No. of UNITS	RANGE			MEDIAN	UNITS
HB	Tube – BLB	HW	2	1.6	to	3.2	2.4	lb/ODT
MDF	Tube – BLB	HW	2	0.34	to	0.85	0.57	lb/ODT
MDF	Tube	HW	1	0.68	to	1.4	1.0	lb/ODT
MDF	Tube – BLB	Pine	11	0.26	to	6.8	4.6	lb/ODT
MDF	Tube – BLB	WS	6	0.97	to	4.6	2.8	lb/ODT
MDF	Tube	WS	2	0.56	to	1.9	1.0	lb/ODT
PB	Rotary/Green[1]	HW	2	0.03	to	0.89	0.20	lb/ODT
PB	Rotary/Green[1]	HW/SW	8	0.04	to	3.1	1.1	lb/ODT
PB	Rotary/Green[1]	Pine	5	0.68	to	8.4	3.8	lb/ODT
PB	Rotary/Green[1]	WS	5	0.18	to	1.8	0.65	lb/ODT
PB	Rotary/Dry[2]	WS	6	0.03	to	0.78	0.27	lb/ODT
PB	Rotary/Dry[2]	Pine	12	0.02	to	2.0	0.96	lb/ODT
OSB	Conveyer	HW	1	0.18	to	0.44	0.28	lb/ODT
OSB	Rotary	HW	27	0.03	to	4.6	1.3	lb/ODT
OSB	Rotary	HW/SW	2	1.5	to	7.1	2.7	lb/ODT
OSB	Rotary	Pine	33	0.66	to	38	6.9	lb/ODT
OSB	Rotary	WS	2	0.92	to	7.0	3.6	lb/ODT
SW-PLY	Veneer	Pine	12	0.009	to	4.8	1.8	$lb/MSF_{3/8}$
SW-PLY	Veneer	WS	10	0.09	to	0.77	0.44	$lb/MSF_{3/8}$
SW-PLY	Radio Frequency	Pine	2	0.15	to	0.50	0.33	$lb/MSF_{3/8}$
SW-PLY	Radio Frequency	WS	1	0.007	to	0.04	0.02	$lb/MSF_{3/8}$
HW-PLY	Veneer	HW	1	0.04	to	0.07	0.06	$lb/MSF_{3/8}$
HW Veneer	Veneer	HW	2	0.01	to	0.04	0.02	lb/MSF
Lumber	Kiln	Southern Pine	9	1.3	to	5.4	3.3	lb/MBF
Lumber	Kiln	Jack Pine	1				0.97	lb/MBF
Lumber	Kiln	Red Pine	1				2.1	lb/MBF

Product: HB – hardboard; PB – particleboard; MDF – medium density fiberboard; OSB – oriented strandboard; SW-PLY – softwood plywood; HW-PLY – hardwood plywood; HW-Veneer – Sliced thin veneer of varying thicknesses
Dryer Type: For tube dryers, BLB indicates resin and waxes have been added prior to drying in a blow line blender. Radio frequency veneer dryers are used for redrying.
Wood Species: HW – hardwood or hardwood mix containing >80% hardwood; HW/SW – softwood/hardwood mix containing >50% hardwood and >20% softwood; WS – western softwood or western softwood mix containing <50% hardwood; Pine - southern pine or other pine or pine mix containing <50% hardwood
Units: lb/ODT = lb C per oven dry ton of wood; lb/MSF 3/8 = lb C per thousand square feet of veneer dried adjusted to a thickness of 3/8 inch; lb/MSF – lb C per thousand square feet unadjusted for thickness; lb/MBF – lb C per thousand board feet
Notes: [1]rotary dryers operating at inlet temperatures in excess of 600°F, drying wood with a moisture content >30%, dry basis; [2]rotary dryers operating at inlet temperatures < 600°F, drying wood with a moisture content <30%, dry basis

Appendix E

Air Dispersion Modeling Protocol/IDEQ Protocol Approval

Appendix E

Air Dispersion Modeling Protocol/IDEQ Protocol Approval

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

1410 NORTH HILTON, BOISE, ID 83706 · (208) 373-0502

C. L. "BUTCH" OTTER, GOVERNOR
TONI HARDESTY, DIRECTOR

March 21, 2007

Rick McCormick
Project Engineer
CH2M HILL - Boise

RE: Modeling Protocol for the Treasure Valley Forest Products Facility Located in Boise, Idaho

Rick:

DEQ received your dispersion modeling protocol on February 14, 2007. The modeling protocol was submitted on behalf of Treasure Valley Forest Products. The modeling protocol proposes methods and data for use in the ambient impact analyses of a Permit to Construct (PTC) application for both the existing facility and a proposed sawmill at the site in Boise, Idaho.

The modeling protocol has been reviewed and DEQ has the following comments:

- Comment 1: Emissions calculations were submitted with the protocol. DEQ permit writer Shawnee Chen (373-0176) was provided the calculations and expressed some concerns with the data and methods. All emissions inventory issues should be resolved with the permit writer before submittal of the PTC application.

- Comment 2: The application should provide documentation and justification for stack parameters used in the modeling analyses, clearly showing how stack gas temperatures and flow rates were estimated. In most instances, applicants should use typical parameters, not maximum temperatures and flow rates.

- Comment 4: The proposed receptor grid appears reasonable. However, it is the applicant's responsibility to use a sufficiently tight receptor network such that the maximum modeled concentration is reasonably resolved. If DEQ conducts verification modeling analyses with a tighter receptor grid and compliance with standards is no longer demonstrated, the permit will be denied.

- Comment 6: For all pollutants except 24-hour PM10 and annual NO_2, DEQ determined default background concentrations for urban areas are most appropriate for the specific site in Boise: PM10 annual = 27 $\mu g/m^3$; CO 1-hr = 15,600 $\mu g/m^3$; CO 8-hr = 5,200 $\mu g/m^3$; SO_2 3-hr = 120 $\mu g/m^3$; SO_2 24-hr = 40 $\mu g/m^3$; SO_2 annual = 10 $\mu g/m^3$; Pb quarterly = 0.08 $\mu g/m^3$. A PM10 24-hour concentration of 84 $\mu g/m^3$ should be used (based on airshed modeling results). An annual NO_2 value of 21 $\mu g/m^3$, based on Boise monitoring data, should be used.

- Comment 7: DEQ has identified Motive Power and Central paving as cocontributing sources. DEQ will provide either modeling files or emissions and stack parameters for these facilities.

- Comment 8: Annual PM10 must still be modeled as a surrogate for compliance with annual PM2.5. Per EPA guidance, it is assumed that compliance with PM10 standards will assure compliance with PM2.5.

- Comment 9: Please include all modeling files, including modeling runs for the coarse grid. Also, please submit the BPIP input file.

The following are emissions and stack information for the Central Paving facility. Emissions source locations are given in Lat Lon, and you will need to convert these to UTM coordinates for modeling.

HMA stack: 35 ft, 4.5 ft diameter, 51000 acfm, 200° F.
PM10 9.2 lb/hr 14.9 TPY
CO 52 lb/hr
NOx 35.6 TPY
SO2 4.4 lb/hr 7.1 TPY
Location: lat 43.556279, lon -116.169956

Generator stack: 7.0 ft, 0.67 ft diameter, 4,457 acfm, 993° F
PM10 1.09 lb/hr 1.76 TPY
CO 9.25 lb/hr
NOx 56.3 TPY
SO2 5.5 lb/hr 3.9 TPY
Location: lat 43.556073, lon -116.170078

Primary Screen: model as volume source: release ht = 5 m, initial sigma y = 1.16 m,
Initial sigma z = 1.16. lat 43.551898 lon -116.165027
PM10 0.44 lb/hr, 0.11 lb/hr annual avg

Tirt. Crusher + screen: model as volume source: release ht = 5 m,
initial sigma y = 2.33 m, Initial sigma z = 1.16. lat 43.551824 lon -116.165312
PM10 0.77 lb/hr, 0.19 lb/hr annual avg

Conveyors: model as volume source: release ht = 5 m,
initial sigma y = 6.98 m, Initial sigma z = 1.16. lat 43.551809 lon -116.165006
PM10 0.166 lb/hr, 0.0416 lb/hr annual avg

Truck unloading: model as volume source: release ht = 2 m,
initial sigma y = 1.16 m, Initial sigma z = 0.93. lat 43.551765 lon -116.164485
PM10 0.77 lb/hr, 0.19 lb/hr annual avg

DEQ's modeling staff considers the submitted dispersion modeling protocol, with resolution of the additional items noted above, to be approved. It should be noted, however, that the approval of this modeling protocol is not meant to imply approval of a completed dispersion modeling analysis. Please refer to the *State of Idaho Air Quality Modeling Guideline*, which is available on the Internet at http://www.deq.state.id.us/air/permits_forms/permitting/modeling_guideline.pdf, for further guidance.

To ensure a complete and timely review of the final analysis, our modeling staff requests that electronic copies of all modeling input and output files (including BPIP, raw meteorological data files, AERMET input and output files, and AERMAP input and output files) are submitted with an analysis report. Also, please attach the protocol and this protocol approval notification.
If you have any further questions or comments, please contact me at (208) 373-0112.

Sincerely,

Kevin Schilling
Stationary Source Air Modeling Coordinator
Idaho Department of Environmental Quality
208 373-0112

Air Dispersion Modeling Protocol for Treasure Valley Forest Products Yamhill Facility

(15-dayPermit Construction Approval)

Boise, Idaho

Prepared for

Treasure Valley Forest Products

Submitted to:

Idaho Department of Environmental Quality

February 2007

Prepared By:

CH2MHILL

Brief Project Background

Treasure Valley Forest Products (TVFP) is in the process of preparing a 15-day Permit to Construct (PTC) for the TVFP Yamhill Facility in Boise, Idaho. The facility is located at 1625 Yamhill Road, just west of Federal Way and approximately ½ mile north of Gowen Road in the southeastern portion of Boise City in Ada County. TVFP operates multiple wood product emission generating sources at its Yamhill facility. For this project, TVFP proposes to construct a C-Frame Sawmill at the site.

An air quality impact analysis will be performed in support of the pre-permit construction approval per IDAPA 58.01.01.213. Idaho regulation requires the facility applying for a PTC to demonstrate compliance with the National Ambient Air Quality Standards (NAAQS) and with Toxic Air Pollutant (TAP) standards (IDAPA 58.01.01.210).

This air dispersion modeling protocol is being submitted to the Idaho Department of Environmental Quality (IDEQ) for approval prior to the initiation of the air quality modeling for the TVFP facility. This document summarizes the modeling methodology that will be used to evaluate the facility's impacts to air quality with respect to criteria and toxic air pollutants. It has been prepared based on the U.S. Environmental Protection Agency (EPA) *Guidelines on Air Quality Models* (GAQM), and the *State of Idaho Air Quality Modeling Guideline* (ID AQ-01, December 31, 2002).

Sources

Process Description

Emissions sources from both the existing facility and the proposed sawmill will be included in this modeling analysis. The existing facility receives green logs of primarily lodgepole pine for processing. The green logs are debarked, cut to the desired length, and roughly sized to the desired diameter. The logs are then moved into a drying kiln, a 2000 square foot building heated to 130°F with hot water radiators. The hot water is produced in a wood-fired furnace. The debarked logs remain in the drying kiln 8-10 weeks to reduce moisture content from approximately 35% to less than 15%. After the logs are dry, they are finished to the desired diameter, length and smoothness in one or more of several processors at the site.

Sawmill

TVFP plans to install a new sawmill at the Yamhill facility. This sawmill will process 50-60% of the 13 million bd-ft of logs per year that can be debarked in the Debarker. The sawmill will be located inside a building and there will be no stack vent. The Yamhill facility will convey the residues across a sorter and into two storage bins. The first bin will have a capacity of 2,800 cubic feet and will hold sawdust. The second bin will have a

capacity of 6,000 cubic feet and hold wood chips. Both of the wood residue bins will be equipped with unloading flaps. While the unloading of the bins will occur outside, the wood residue conveyors will be enclosed into the bins.

Emission Control Description

There are no emission controls at the facility.

Source Parameters

One wood fired furnace and four cyclones will be modeled as point sources. All other sources are considered fugitive sources and will be modeled as volume sources. The source parameters are summarized in Table 1. A facility layout showing the location of buildings and emissions sources will be included in the final report. These parameters are based on preliminary design information, and may be updated in the permit application.

Table 1a. Stack Parameters for Point Sources

Source ID	Source Description	Stack Height	Temperature	Exit Velocity	Stack Diameter
		(m)	(K)	(m/s)	(m)
Point Sources					
BOILER	Wood-Fired Boiler	7.32	449.8	0.18	0.30
GCYCL	Green Lathe Cyclone	16.15	294.3	0.001	0.91
ACYCL	Processor A Cyclone	16.15	294.3	15.92	0.91
BCYCL	Processor B Cyclone	9.14	294.3	15.92	0.91
PCYCL	Pole Lathe Cyclone	16.15	294.3	0.001	0.91

Table 1b. Volume Sources Parameters

Source ID	Source Description	Release Height	Horizontal Dimension	Vertical Dimension
		(m)	(m)	(m)
GBIN	Green Lathe Cyclone Bin	4.11	3.66	2.44
ABIN	Processor A Cyclone Bin	4.11	3.66	2.44
BBIN	Processor B Cyclone Bin	4.11	3.66	2.44
PBIN	Pole Lathe Cyclone Bin	4.11	3.66	2.44
SBIN	Sawmill Sawdust Bin	4.11	3.66	2.44
WBIN	Sawmill Wood Chip Bin	4.11	3.66	2.44
PILE	Sawdust Pile	6.09	15.24	6.09
KILN	Dry Kiln(no vents or openings)			
Sawmill	Sawmill (to be surveyed)			
DEB	Debarker	7.31	3.40	3.40

Note: Kiln and Sawmill source parameters will be included in the final report.

Emissions

The estimated criteria emissions by source and pollutant are shown in Tables 2 and 3. VOC emissions will not be modeled because VOC is regulated as a precursor to ozone and there

is no ambient standard for VOC. The emission rates included in this analysis are subject to change.

TAP emissions will be estimated and compared to the screening emission limits (EL) specified in the regulation (IDAPA 58.01.01 585 and 586). Modeling will be performed for those TAPs whose emission estimate is greater than the EL. Table 4 show those TAPs with emissions above the EL, for which modeling will be required.

Table 2. Annual Emission Rates in tons/year

Source ID	Source Description	PM_{10}	NO_x	SO_2	CO	VOC
Point Sources						
FURNACE	Wood-Fired Furnace	0.30	0.011	0.001	0.014	0.0004
DEB	Debarker	0.60				
GCYCL	Green Lathe Cyclone	0.80				
ACYCL	Processor A Cyclone	0.11				
BCYCL	Processor B Cyclone	0.02				
PCYCL	Pole Lathe Cyclone	0.11				
Volume Sources						
GBIN	Green Lathe Cyclone Bin	2.93				
ABIN	Processor A Cyclone Bin	0.39				
BBIN	Processor B Cyclone Bin	0.06				
PBIN	Pole Lathe Cyclone Bin	0.38				
SBIN	Sawmill Sawdust Bin	0.51				
WBIN	Sawmill Wood Chip Bin	2.20				
PILE	Sawdust Pile	0.28				
KILN	Dry Kiln	0.03				8.970
Sawmill	Sawmill	0.62				

Table 3. Maximum Hourly Emission Rates in pounds/hour						
Source ID	Source Description	PM_{10}	NO_x	SO_2	CO	VOC
Point Sources						
FURNACE	Wood-Fired Furnace	0.1	0.004	0.0002	0.004	0.0001
DEB	Debarker	0.57				
GCYCL	Green Lathe Cyclone	0.77				
ACYCL	Processor A Cyclone	0.11				
BCYCL	Processor B Cyclone	0.02				
PCYCL	Pole Lathe Cyclone	0.11				
Volume Sources						
GBIN	Green Lathe Cyclone Bin	2.82				
ABIN	Processor A Cyclone Bin	0.37				
BBIN	Processor B Cyclone Bin	0.06				
PBIN	Pole Lathe Cyclone Bin	0.36				
SBIN	Sawmill Sawdust Bin	0.49				
WBIN	Sawmill Wood Chip Bin	2.12				
PILE	Sawdust Pile	0.27				
KILN	Dry Kiln	0.01				2.88
SAW	Sawmill	0.60				

Table 4. Maximum Hourly Emissions for Toxic Air Pollutants in pounds/hour				
Source ID	Arsenic	Benzene	Formaldehyde	PAHS
FURNACE	1.10E-05	2.10E-03	2.20E-03	2.37E-03
KILN	-	-	6.04E-03	-

Note: TAPS with annual criteria will adjusted for annual hours of operation in final report.

Regulatory Review

Standards and Criteria Levels

Table 5 summarizes applicable criteria including:

- Significant contribution levels (SCL),
- National Ambient Air Quality Standards (NAAQS).

Table 5. Regulatory Standards and Significance Levels

Pollutant	Averaging Period	NAAQS		SCL
		µg/m³	ppm	(µg/m³)
CO	8-Hour	10,000	9	500
	1-Hour	40,000	35	2,000
NO_2	Annual	100	0.053	1
PM_{10}	Annual	--	--	1
	24-Hour	150	--	5
$PM_{2.5}$	Annual	15	--	--
	24-Hour	35	--	--
SO_2	Annual	80	0.03	1
	24-Hour	365	0.14	5
	3-Hour	1300	0.5	25

Modeled concentrations will be compared to the applicable Idaho significant contribution levels (SCL) shown in Table 5. If the predicted impacts are not significant (that is, less than the SCL), the modeling is complete for that pollutant under that averaging time. If impacts are significant, a more refined analysis will be conducted for demonstration of compliance with the NAAQS. A description of the modeling methodology is presented below.

Dispersion Model

The EPA-approved AERMOD (Version 07026) model will be used. AERMOD is a steady-state plume model that simulates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain. This model is recommended for short range (< 50 km) dispersion from the source. The model incorporates the ISC Prime algorithm for modeling building downwash, which was developed to address deficiencies in the downwash algorithm previously used in the ISC model. AERMOD is designed to accept input data prepared by two specific pre-processor programs, AERMET and AERMAP. IDEQ adopted the federal mandate requiring the use of the AERMOD

dispersion model for permit applications on November 9, 2006. AERMOD will be run with the following options.

- Regulatory default options,
- Direction-specific building downwash,
- Actual receptor elevations and hill height scales,
- Complex/intermediate terrain algorithms.

Building Downwash

Building influences on stacks are considered by incorporating the updated EPA Building Profile Input Program [BPIP-Prime]. The stack heights used in the dispersion modeling will be the actual stack height or Good Engineering Practice (GEP) stack height, whichever is less.

Meteorological Data

AERMET modeling files were developed by IDEQ for Boise, Idaho for 1988 to1992. The site characteristics used by IDEQ when processing AERMET are listed in Appendix A. These characteristics include albedo, surface roughness, and Bowen ratio for each season and each 30-degree wind direction sector.

AERMET accepts National Weather Service (NWS) 1-hour surface observations, NWS twice-daily upper air soundings, and data from an on-site meteorological measurement system. These data are processed in three steps. The first step extracts data from the archive data files and performs various quality assessment checks. The second step merges all available data (both NWS and on-site). These merged data are stored together in a single file. The third step reads the merged meteorological data and estimates the boundary layer parameters needed by AERMOD. AERMET writes two files for input to AERMOD: a file of hourly boundary layer parameter estimates and a file of multiple-level (when the data are available) observations of wind speed and direction, temperature, and standard deviation of the fluctuating components of the wind direction.

For PM_{10} and TAPs modeling a combined data file for all five years will be used according to IDEQ request. For all other pollutants a data file for each year will be used.

Ambient Conditions

Background concentrations for this facility will be provided by IDEQ. The completed Table 6 will be included with the final report.

Table 6. Background Criteria Pollutant Concentrations (μg/m³)					
Pollutant	1-hr	3-hr	8-hr	24-hr	Annual
NO_x					
SO_2					
PM_{10}					
CO					

Receptors

The ambient air boundary will be the fenceline. The selection of receptors in AERMOD will be as follows:

- The first run will be a 500-meter coarse grid with a nested Cartesian grid of 100 meter-spaced receptors as follows:
  - The 100-meter grid will extend approximately 1 km around the facility.
  - The 500-meter grid will extend approximately 5 km,
  - Receptors will be placed at 25-meter intervals around the fenceline.
- A second run using a fine receptor grid will be centered on the point of maximum impact and re run using a 50 meter grid spacing, unless the initial maximum occurs on the fenceline.
-
- Receptor elevations will be calculated by AERMAP as described below.

AERMAP will be run to process terrain elevation data for all sources and receptors using 7.5 minute Digital Elevation Model (DEM) files prepared by the USGS. AERMAP first determines the base elevation at each source and receptor. For complex terrain situations, AERMOD captures the physics of dispersion and creates elevation data for the surrounding terrain identified by a parameter called hill height scale. AERMAP creates hill height scale by searching for the terrain height and location that has the greatest influence on dispersion for each individual source and receptor. Both the base elevation and hill height scale data are produced for each receptor by AERMAP as a file or files which can be directly accessed by AERMOD.

Preliminary Analysis

The preliminary analysis for each pollutant will be conducted as follows:

- If the predicted impacts are not significant (that is, less than the SCL) for each criteria pollutant, the modeling is complete for that pollutant under that averaging time.
- If impacts are significant, a more refined analysis, as described below, will be conducted.

- For NO_x, it will be initially assumed that all NO_x is converted to NO_2. If the resulting concentration exceeds the SCL, then the concentration will be multiplied by the default annual NO_2/NO_x ratio of 0.75 as suggested by EPA and compared to the SCL again. If the resulting concentrations still exceed the SCL, then a refined analysis will be conducted.
- Toxic pollutant impacts will be compared to the acceptable ambient concentrations for non-carcinogens or carcinogens, as applicable.

Refined Analyses – Criteria Pollutants

- Comparison to the Ambient Air Quality Standards
  - For pollutants with concentrations greater than the SCLs, the maximum concentration will be determined and compared to the NAAQS. This maximum concentration will include contributions from the facility, nearby sources, and ambient background concentrations. Background concentrations to be provided by IDEQ will be used to determine concentrations.
  - IDEQ will be contacted to identify nearby sources, if any, that need to be included in the analysis.

Output - Presentation of Results

The results of the air dispersion modeling analyses will be presented as follows:

- A description of modeling methodologies and input data,
- A summary of the results in tabular and, where appropriate, graphical form,
- Modeling files used by AERMOD will be provided with the application on compact disk,
- Any deviations from the methodology proposed in this protocol will be presented.

Appendix A:Boise, ID AERMET Surface parameters

Prepared by IDEQ

Met Site:	surface	Boise	Station #	24131
	u. air	Boise	Station #	24131

Lat	43.565	long	116.22	zone 7
Lat	43.565	long	116.22	zone 7

instrument height: 20 feet

Landuse Assessment			
Sector		**Percentage**	**Sector Degrees**
	urban	75	
	grassland	0	300-105
A	desert shrubland	25	
	urban	25	
	grassland	50	105-205
B	desert shrubland	25	
	urban	40	
	grassland	10	205-260
C	desert shrubland	50	
	urban	0	
	grassland	20	260-300
D	desert shrubland	80	

AERMET Surface Characteristics for Landuse Types					
		Winter	**Spring**	**Summer**	**Fall**
urban	surface albedo	0.25	0.14	0.16	0.18
	bowen ratio	1.50	1.00	2.00	2.00
	surface roughness	0.50	0.50	0.50	0.50
grassland	surface albedo	0.40	0.18	0.18	0.20
	bowen ratio	1.50	0.40	0.80	1.00
	surface roughness	0.00	0.05	0.10	0.01
desert shrub	surface albedo	0.35	0.30	0.28	0.28
	bowen ratio	6.00	3.00	4.00	6.00
	surface roughness	0.20	0.30	0.30	0.30

AERMET Surface Characteristics for Landuse Types					
Sector	**Characteristic**	**Winter**	**Spring**	**Summer**	**Fall**
	surface albedo	0.275	0.180	0.190	0.205
	bowen ratio	2.625	1.500	2.500	3.000
A	surface roughness	0.425	0.450	0.450	0.450
	surface albedo	0.350	0.200	0.200	0.215
	bowen ratio	2.625	1.200	1.900	2.500
B	surface roughness	0.176	0.225	0.250	0.205
	surface albedo	0.315	0.224	0.222	0.232
	bowen ratio	3.750	1.940	2.880	3.900
C	surface roughness	0.300	0.355	0.360	0.351
	surface albedo	0.360	0.276	0.260	0.264
	bowen ratio	5.100	2.480	3.360	5.000
D	surface roughness	0.160	0.250	0.260	0.242

Appendix F

Modeling Results

Air Dispersion Modeling Report for Treasure Valley Forest Products

Treasure Valley is in the process of preparing a 15 Day Permit to Construct (PTC) application to add a C-Frame Sawmill at its multiple wood products facility in Boise, Ada County, Idaho. An air dispersion modeling protocol was submitted to Idaho Department of Environmental Quality (IDEQ) and the approval letter was received from IDEQ on March 21, 2007. The following paragraphs describe any deviations from the submitted protocol and summarize the modeling results.

Model

The air quality impact analysis was performed using the EPA-approved AERMOD (Version 07026) model as described in the protocol. The receptor grid and meteorological data described in the protocol were used.

Sources and Emissions

The source parameters and emissions have changed since the modeling protocol was submitted. Some sources have been added and some sources have been removed. As well, some missing source parameters from the protocol have been added. All source parameters and emission factors were reviewed for accuracy. A second sawmill wood chip bin was added to the facility. The dry kiln was modeled as 4 adjacent elevated volume sources. The sawmill was modeled as 4 clustered and elevated volume sources. A debarker screen was added to the analysis as a volume source. The horizontal and vertical dimensions of volume sources were reviewed and updated to reflect building and source dimensions. The source parameters used in the modeling, including all changes since the protocol submittal, are summarized in Table 1 and Table 2.

Additionally, it is our opinion that the 1997 DEQ Wood Products Emission Factor Guidance is too conservative for supporting a particulate matter emission factor for debarking and log cutting for application at the Treasure Valley Forest Products facility located in Boise, Idaho. In our research, we found that both AP-42, Section 10.9, Table 10.9-7 - Engineered Wood Products Manufacturing and NCASI, NCASI Environmental Resource Handbook for Wood Products Plants 2-3, Chapter 2: Woodyard and Wood Furnish Preparation © 2004, National Council for Air and Stream Improvement, last revised October 31, 2004, have no available information to support a reasonable particulate matter emission factor for either debarking or log cutting.

Log sawing and debarking can result in the release of particulate matter. Such particulate releases are referred to as "fugitive" emissions because they are not released from a stack or vent. As such, they are extremely difficult to measure. Even estimating the emissions is very challenging due to the numerous factors that influence emission

rates. Most of the particulates released are comprised of wood or bark, although soil-based particulates can be dislodged from the bark as well.

An important consideration in evaluating emission rates is particle size; relatively large particles tend to settle quickly while smaller particles remain airborne longer. Particles that stay airborne long enough to travel beyond the mill property line are of concern because they can create a nuisance dust problem and may contribute to ambient PM_{10} and $PM_{2.5}$ particulate concentrations. Unfortunately, there is no available information on either the mass emission rates or size distributions of fugitive releases from sawing, chipping, screening, unloading, transfer, or storage piles of chips, sawdust, or bark.

Therefore, the debarker emissions were removed in the dispersion modeling analysis because there is insufficient mass data to properly account for the emissions associated with this process.

TABLE 1. STACK PARAMETERS

Source ID	Source Description	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)
Point Sources					
BOILER	Wood-Fired Boiler	7.32	449.8	0.18	0.30
GCYCL	Green Lathe Cyclone	16.15	294.3	0.001	0.91
ACYCL	Processor A Cyclone	16.15	294.3	15.92	0.91
BCYCL	Processor B Cyclone	9.14	294.3	15.92	0.91
PCYCL	Pole Lathe Cyclone	16.15	294.3	0.001	0.91

TABLE 2. VOLUME SOURCES PARAMETERS

Source ID	Source Description	Release Height (m)	Horizontal Dimension (m)	Vertical Dimension (m)
ABIN	Processor A Cyclone Bin	4.12	1.13	1.91
BBIN	Processor B Cyclone Bin	4.12	0.71	1.91
PBIN	Pole Lathe Cyclone Bin	4.12	1.06	1.91
SBIN	Sawmill Sawdust Bin	4.12	1.06	1.91
WBIN1	Sawmill Wood Chip Bin	4.12	1.06	1.91
WBIN2	Sawmill Wood Chip Bin	4.12	1.06	1.91
DEBSCR	Debarker Screen	5.49	0.85	2.55
GBIN	Green Lathe Cyclone Bin	4.12	1.28	1.91
SAWMILL1	SAWMILL Vent 1	15.24	0.14	7.09

Source ID	Source Description	Release Height (m)	Horizontal Dimension (m)	Vertical Dimension (m)
SAWMILL2	SAWMILL Vent 2	15.24	0.14	7.09
SAWMILL3	SAWMILL Vent 3	15.24	0.14	7.09
SAWMILL4	SAWMILL Vent 4	15.24	0.14	7.09
KILN	Dry Kiln	7.36	4.25	3.54
KILN2	Dry Kiln	7.36	4.25	3.54
KILN3	Dry Kiln	7.36	4.25	3.54
KILN4	Dry Kiln	7.36	4.25	3.54

Note: The sawdust pile and debarker were not be modeled

The annual and hourly maximum emission rates modeled are summarized in Tables 3, 4, and 5.

TABLE 3. ANNUAL EMISSION RATES IN TONS/YEAR

Source ID	Source Description	PM_{10}	NO_x	SO_2	CO	VOC
Point Sources						
BOILER	Wood-Fired Boiler	0.3		0.039	0.94	
GCYCL	Green Lathe Cyclone	1.28				
ACYCL	Processor A Cyclone	0.13				
BCYCL	Processor B Cyclone	0.02				
PCYCL	Pole Lathe Cyclone	0.12				
Volume Sources						
GBIN	Green Lathe Cyclone Bin	2.31E-03				
ABIN	Processor A Cyclone Bin	2.31E-04				
BBIN	Processor B Cyclone Bin	3.44E-05				
PBIN	Pole Lathe Cyclone Bin	2.24E-04				
SBIN	Sawmill Sawdust Bin	4.04E-04				
WBIN1	Sawmill Wood Chip Bin	8.65E-04				
WBIN2	Sawmill Wood Chip Bin	8.65E-04				
DEBSCR	Debarker Screen	7.35E-02				
SAWMILL1	SAWMILL Vent 1	2.35E-01				
SAWMILL2	SAWMILL Vent 2	2.35E-01				
SAWMILL3	SAWMILL Vent 3	2.35E-01				
SAWMILL4	SAWMILL Vent 4	2.35E-01				

Source ID	Source Description	PM_{10}	NO_x	SO_2	CO	VOC
KILN	Dry Kiln	6.5E-04				
KILN2	Dry Kiln	6.5E-04				
KILN3	Dry Kiln	6.5E-04				
KILN4	Dry Kiln	6.5E-04				

TABLE 4. MAXIMUM HOURLY EMISSION RATES IN POUNDS/HOUR

Source ID	Source Description	PM_{10}	NO_x	SO_2	CO	VOC
Point Sources						
BOILER	Wood-Fired Boiler	0.1	0.004	0.0002	0.004	0.0001
DEB	Debarker	0.57				
GCYCL	Green Lathe Cyclone	0.77				
ACYCL	Processor A Cyclone	0.11				
BCYCL	Processor B Cyclone	0.02				
PCYCL	Pole Lathe Cyclone	0.11				
Volume Sources						
GBIN	Green Lathe Cyclone Bin	0.00222				
ABIN	Processor A Cyclone Bin	0.00022				
BBIN	Processor B Cyclone Bin	0.00003				
PBIN	Pole Lathe Cyclone Bin	0.00022				
SBIN	Sawmill Sawdust Bin	0.00039				
WBIN1	Sawmill Wood Chip Bin	0.00083				
WBIN2	Sawmill Wood Chip Bin	0.00083				
DEBSCR	Debarker Screen	0.07069				
SAWMILL1	SAWMILL Vent 1	0.225				
SAWMILL2	SAWMILL Vent 2	0.225				
SAWMILL3	SAWMILL Vent 3	0.225				
SAWMILL4	SAWMILL Vent 4	0.225				
KILN1	Dry Kiln	0.0027				
KILN2	Dry Kiln	0.0027				
KILN3	Dry Kiln	0.0027				
KILN4	Dry Kiln	0.0027				

TABLE 5. MAXIMUM HOURLY EMISSIONS FOR TOXIC AIR POLLUTANTS IN LBS/HOUR

Source ID	Arsenic	Benzene	Formaldehyde
BOILER	1.10E-05	2.10E-03	2.20E-03
KILN1	-	-	1.08E-03
KILN2	-	-	1.08E-03
KILN3	-	-	1.08E-03
KILN4	-	-	1.08E-03

Note: For the Drying Kiln (Kiln 1-Kiln4), Formaldehyde hourly emission rates were modeled based on the annual throughput of 13 million board feet per year (formaldehyde annual ton per year value converted to pounds per hour, ie. .019 tpy to 4.3E-3 lb/hr into 4 separate sources – see App D). Recent facility developments will require only one million board feet per year of logs to be dried in the kilns. Formaldehyde emission rates are overstated but were not re-modeled because the annual modeled concentration does not result in an exceedance of the formaldehyde acceptable ambient concentration for carcinogens.

Ambient Conditions

Background concentrations (as shown in Table 6) were provided by IDEQ in the Approval Letter dated March 21, 2007.

TABLE 6. BACKGROUND CRITERIA POLLUTANT CONCENTRATIONS (µG/M3)

Pollutant	1-hr	3-hr	8-hr	24-hr	Annual
NO_x	-	-	-	-	21
SO_2	-	120	-	40	10
PM_{10}	-	-	-	84.0	27
CO	15,600	-	5,200	-	-

Note: Data provided by IDEQ

Competing Sources

The full impact analysis was only necessary for facility pollutant concentrations above the Significant Contribution Levels (SCL). Central Paving and Motive Power are two adjacent facilities that were included in the full impact analysis. Attachment A lists all source parameters and emission rates for these competing sources. Additional details of the full impact analysis are provided below in the Results Section.

Results

For the preliminary analysis, annual PM_{10}, 24 Hour PM_{10} and annual NO_2 concentrations were above the SCLs. All facility concentrations are summarized in Table 7 and compared to the SCLs.

TABLE 7. COMPARISON OF MODELED CONCENTRATION TO SCL (UNITS UG/M3)

Pollutant	Averaging Period	Criteria	Modeled Conc.	Exceed SCL
Criteria Pollutants				
CO	1-HR	2,000	82.94	No
CO	8-HR	500	23.57	No
NO_2*	ANNUAL	1	1.59	Yes
PM_{10}	24-HR**	5	22.42	Yes
	ANNUAL	1	1.90	Yes
SO_2	ANNUAL	1	0.11	No
	24-HR	5	0.69	No
	3-HR	25	1.99	No

*NOx concentrations were converted to NO_2 by multiplying by 0.75.
The 6th high 24 Hour PM10 Concentration was used.

A full impact analysis was conducted for all receptors where the preliminary analysis showed concentrations exceeding the SCLs. Therefore, three additional analyses were conducted with different receptor grids selected by using the receptors that reached or exceeded the SCLs for emissions from the facility only. Concentrations from the competing modeled facilities are not considered for determining the concentration on their own property.

The full impact analysis compared the sum of background concentrations and facility only concentrations at all receptors modeled to the NAAQs. For receptors for pollutants greater than the SCL, the full impact analysis compares the sum of the background, facility only, and competing sources concentrations to the NAAQs.

For Annual NO_2 concentrations, all the receptors exceeding the SCL were at the facility fenceline or adjacent row of receptors. The maximum facility and competing sources concentration was 3.1 $\mu g/m^3$. The overall concentration with background was 24.1 $\mu g/m^3$ which was below the NAAQs.

For Annual PM_{10} concentrations, all the receptors exceeding the SCL were at the facility fenceline or at the adjacent row of receptors. The maximum facility and competing sources concentration was 4.0 $\mu g/m^3$. The overall concentration with background was 31.0 $\mu g/m^3$, which was below the NAAQs.

For 24 Hour PM_{10} concentrations, receptors exceeding the SCL, were at the facility fenceline or the adjacent row of receptors and also within the property boundary for Central Paving. For all receptors exceeding the SCL and within the Central Paving property, the total concentration included emissions from Treasure Valley and Motive Power. For all other receptors, the total concentration included the emissions from Treasure Valley, Motive Power, and Central Paving. The maximum facility and

competing sources concentration was 58.8 μg/m³. The overall concentration with background was 142.8 μg/m³, which was below the NAAQs.

All modeled concentrations, for the full impacts analysis, are below the NAAQs. Table 8 summarizes a comparison of facility, background, and competing facilities concentrations to the NAAQs. Table 8 also summarizes the toxic pollutant concentrations analyzed. All modeled concentrations occur at the fenceline where the spacing was 25 meters or within a 50m receptor grid.

The modeling files are attached on CD. Attachment B describes and lists all modeling files.

TABLE 8. MODELING RESULTS FOR TREASURE VALLEY (UNITS UG/M3)

Pollutant	Averaging Period	Criteria	Background	Modeled Conc.	Overall Modeled Conc.	Below Criteria	Year	Location	File Name
Criteria Pollutants									
CO	1-HR	40,000	15,600	82.94	15,683	Yes	1990	50 m grid	Final_90_CO.lst
CO	8-HR	10,000	5,200	23.57	5,224	Yes	1992	fenceline	Final_92_CO.lst
NO_2	ANNUAL	100	21	3.08	24	Yes	1991	fenceline	noxcompete_91_nox.lst
PM_{10}	24-HR*	150	84.0	58.84	143	Yes	Combined	50 m grid	24hrpma10compete_88_24hrpm10.lst
	ANNUAL**	50	27	4.03	31	Yes	Combined	50 m grid	annualpma10compete_88_annualpm10.lst
SO_2	ANNUAL	80	10	0.11	10	Yes	1991	fenceline	Final_92_ANNUALSO.lst
	24-HR	365	40	0.69	41	Yes	1991	50 m grid	Final_91_SHORTSO2.lst
	3-HR	1300	120	1.99	122	Yes	1992	50 m grid	Final_92_SHORTSO2.lst
Toxics**									
Arsenic	Annual	2.30E-04	0	0.0001	0.00013	Yes	Combined	fenceline	Final_88_ARSENIC.lst
Benzene	Annual	1.20E-01	0	0.024	0.02422	Yes	Combined	fenceline	Final_88_BENZENE.lst
Formaldehyde	Annual	0.0770	0	0.074	0.07366	Yes	Combined	fenceline	Final_88_FORM.lst

Notes:

*The 24-Hour PM10 concentration is for the 6th high for 5 years of metrological data.

** The toxics and Annual PM10 concentration used a combined 5 year meteorological data file

Attachment A
Competing Source Parameters and Emission Rates

Attachment A: Treasure Valley Air Analysis
Competing Sources used for NAAQs Analysis

Point Sources

	Source ID	Easting (X)	Northing (Y)	Base Elevation	Stack Height	Temp.	Exit Velocity	Stack Diameter	ANNUALPM	NOX	24HRPM10
Facility Name		(m)	(m)	(m)	(m)	(K)	(m/s)	(m)	(tpy)	(tpy)	(lb/hr)
Central Paving facility	HMASTACK	567044.05	4822710.84	885.48	10.67	366.48	16.29	1.37	1.49E+01	3.56E+01	9.20E+00
Central Paving facility	GENHMA	567034.43	4822687.87	886.1	2.13	807.04	64.219	0.20	1.76E+00	5.63E+01	1.09E+00
Motive Power	OLDPT1	566987	4822836	877.64	9.45	299.82	0.1	0.91	1.62E-01	0.00E+00	3.70E-02
Motive Power	OLDPT2	566987	4822843	877.53	9.45	299.82	0.1	0.91	1.62E-01	0.00E+00	3.70E-02
Motive Power	OLDPT3	567031	4822843	878.16	8.23	299.82	0.1	0.91	1.62E-01	0.00E+00	3.70E-02
Motive Power	OLDPT4	567031	4822836	878.13	8.23	299.82	0.1	0.91	1.62E-01	0.00E+00	3.70E-02
Motive Power	NEWPT1	566970	4822872	877	11.89	299.82	0.1	0.91	1.62E-01	3.62E-01	3.71E-02
Motive Power	NEWPT2	566973	4822880	877	11.89	299.82	0.1	0.91	1.62E-01	3.62E-01	3.71E-02
Motive Power	NEWPT3	567026	4822865	877.6	11.89	299.82	0.1	0.91	1.62E-01	3.62E-01	3.71E-02
Motive Power	NEWPT4	567023	4822856	877.82	11.89	299.82	0.1	0.91	1.62E-01	3.62E-01	3.71E-02
Motive Power	SWBPP1	567280	4823007	878	11.43	293	0.1	0.91	1.76E-02	0.00E+00	4.02E-03
Motive Power	SWBPP2	567283	4823015	878	10.67	293	0.1	0.91	1.76E-02	0.00E+00	4.02E-03
Motive Power	SWBPB	567286	4823018	878	2.13	293	19.508	0.95	2.81E-01	1.62E+00	6.40E-02
Motive Power	SMALLPT1	567178	4822972	877	7.01	293	0.1	1.22	3.24E-01	0.00E+00	7.40E-02
Motive Power	SMALLPT2	567186	4822972	877.33	7.01	293	0.1	1.22	3.24E-01	0.00E+00	7.40E-02
Motive Power	BOILER1	567335	4822863	878.77	4.88	477.59	19.835	0.46	2.19E-01	2.42E+00	4.99E-02
Motive Power	BOILER2	567335	4822866	878.71	9.75	366.48	0.02	0.41	0.00E+00	0.00E+00	0.00E+00
Motive Power	SMPTBOIL	567187.19	4822966.5	877.38	1.83	366.48	0.083	0.38	3.39E-02	3.75E-01	7.75E-03
Motive Power	LOCOSB	567316	4822812	881.39	9.75	366.48	0.073	0.41	3.39E-02	3.75E-01	7.75E-03
Motive Power	PANELMAS	567106	4823050	877	13.11	327.59	0.086	0.20	2.90E-01	0.00E+00	6.61E-02
Motive Power	MAXTUBE	567313	4822799	882.76	2.13	310.93	10.737	0.15	6.54E-02	7.23E-01	1.49E-02
Motive Power	AENGTEST	568130.1	4822339.5	893.58	6.10	597.04	29.8	0.61	6.47E+00	6.43E+01	1.48E+00
Motive Power	APAINT	568056	4822394.7	893	10.67	293	0.1	1.07	2.82E-01	0.00E+00	6.44E-02
Motive Power	ASHOTB	568036.3	4822377.4	893	4.57	293	15.231	0.58	1.37E+00	0.00E+00	3.12E-01
Motive Power	COMPHEAT	567184.5	4822891.9	877.88	8.60	435.93	5.85	0.41	6.54E-02	7.23E-01	1.49E-02
Motive Power	APROCECO	568076.9	4822403.7	893	4.88	399.82	4.084	0.25	8.17E-02	9.00E-01	1.87E-02
Motive Power	COMPRESS	567164	4822859	878.31	5.18	377.59	0.01	0.10	1.27E+00	3.81E+00	2.90E-01
Motive Power	FABBB	567103.31	4823019	877	1.83	0	0.001	0.10	1.10E-01		2.50E-02
Motive Power	COMPBB	567210.5	4822878	878	3.05	0	0.001	0.15	1.10E-01		2.50E-02
Motive Power	LOCOBB	567225.81	4822853	878.57	1.83	0	0.001	0.10	1.10E-01		2.50E-02
Motive Power	PANGBB	568101.69	4822383.5	893.66	8.84	0	0.001	0.11	1.10E-01		2.50E-02
Motive Power	CLEMBB	568105.19	4822349.5	893.68	7.01	0	0.001	0.12	1.10E-01		2.50E-02
Motive Power	LOADTEST	567262.94	4823040	878	4.60	597	60	0.43	6.47E+00	6.43E+01	1.48E+00

Attachment A: Treasure Valley Air Analysis
Competing Sources used for NAAQs Analysis

Volume Sources

Facility Name	Source ID	Easting (X) (m)	Northing (Y) (m)	Base Elevation (m)	Release Height (m)	Horizontal Dimension (m)	Vertical Dimension (m)	ANNUALPM (tpy)	24HRPM10 (lb/hr)
Central Paving facility	SCREEN	567447.06	4822228.28	885.75	5.00	1.16	1.16	0.48	4.40E-01
Central Paving facility	CRUSHER	567424.12	4822219.83	885.17	5.00	2.33	1.13	0.83	7.70E-01
Central Paving facility	CONVEY	567448.86	4822218.41	885.43	5.00	6.98	1.16	0.18	1.66E-01
Central Paving facility	TRUCK	567490.99	4822213.95	886	2.00	1.16	0.93	0.83	7.70E-01

Attachment B
Modeling File List

Attachment B: Modeling File
Treasure Valley

File Name	Averaging Period	Pollutant	Met File	Description	File Type	Folder
final.bst	**all**	**all**	**all**		**beest**	**main**
Final_88_ANNUALSO.dta/lst	Annual	SO2	88	facility only	input and output	SO2
Final_88_CO.dta/lst	1 HR and 8 HR	CO	88	facility only	input and output	CO
Final_88_NOX.dta/lst	Annual	NOX	88	facility only	input and output	NOX
Final_88_SHORTSO2.dta/lst	3 Hr and 24 HR	SO2	88	facility only	input and output	SO2
Final_88_24HRPM10.dta/lst	24 HR	PM10	88-92	facility only	input and output	PM10
Final_88_ANNUALPM.dta/lst	Annual	PM10	88-92	facility only	input and output	PM10
Final_88_ARSENIC.dta/lst	Annual	Arsenic	88-92	facility only	input and output	Toxic
Final_88_BENZENE.dta/lst	Annual	Benzene	88-92	facility only	input and output	Toxic
Final_88_FORM.dta/lst	Annual	Formaldehyde	88-92	facility only	input and output	Toxic
Final_89_ANNUALSO.dta/lst	Annual	SO2	89	facility only	input and output	SO2
Final_89_CO.dta/lst	1 HR and 8 HR	CO	89	facility only	input and output	CO
Final_89_NOX.dta/lst	Annual	NOX	89	facility only	input and output	NOX
Final_89_SHORTSO2.dta/lst	3 Hr and 24 HR	SO2	89	facility only	input and output	SO2
Final_90_ANNUALSO.dta/lst	Annual	SO2	90	facility only	input and output	SO2
Final_90_CO.dta/lst	1 HR and 8 HR	CO	90	facility only	input and output	CO
Final_90_NOX.dta/lst	Annual	NOX	90	facility only	input and output	NOX
Final_90_SHORTSO2.dta/lst	3 Hr and 24 HR	SO2	90	facility only	input and output	SO2
Final_91_ANNUALSO.dta/lst	Annual	SO2	91	facility only	input and output	SO2
Final_91_CO.dta/lst	1 HR and 8 HR	CO	91	facility only	input and output	CO
Final_91_NOX.dta/lst	Annual	NOX	91	facility only	input and output	NOX
Final_91_SHORTSO2.dta/lst	3 Hr and 24 HR	SO2	91	facility only	input and output	SO2
Final_92_ANNUALSO.dta/lst	Annual	SO2	92	facility only	input and output	SO2
Final_92_CO.dta/lst	1 HR and 8 HR	CO	92	facility only	input and output	CO
Final_92_NOX.dta/lst	Annual	NOX	92	facility only	input and output	NOX
Final_92_SHORTSO2.dta/lst	3 Hr and 24 HR	SO2	92	facility only	input and output	SO2
prime.so/prw/sum/tab	NA	NA	NA	facility only	building downwash	downwash
prime.so/prw/sum/tab	NA	NA	NA	compete	building downwash	compete\downwash
boi88.plc/sfc	NA	NA	88	NA	AERMET	MET
boi88_92.plc/sfc	NA	NA	88-92	NA	AERMET	MET
boi89.plc/sfc	NA	NA	89	NA	AERMET	MET
boi90.plc/sfc	NA	NA	90	NA	AERMET	MET
boi91.plc/sfc	NA	NA	91	NA	AERMET	MET
boi92.plc/sfc	NA	NA	92	NA	AERMET	MET
24hrpma10compete_88_24hrpm10.dta/lst/beest	24 HR	PM10	88-92	compete	input and output	compete
annualpma10compete_88_annualpm10.dta/lst/beest	Annual	PM10	88-92	compete	input and output	compete
noxcompete_91_nox.dta/lst/beest	Annual	NOX	91	compete	input and output	compete

Appendix G

Regulatory Applicability

State and Federal Regulation Applicability

The following sections address air quality regulatory compliance requirements for the TVFP facility. As detailed below, the sources comply with all applicable Idaho air quality regulations codified in IDAPA 58.01.01, as well as US EPA Code of Federal Regulations (CFR).

Federal Regulations

New Source Review (NSR) and PSD Applicability - 40 CFR Parts 51 and 52

In accordance with EPA and IDAPA 58.01.01.205 rules, the proposed facility would be required to submit a construction permit application subject to the requirements of NSR if it is determined to be a major source or a major modification. The requirements of NSR vary in two substantial ways, depending on whether the proposed facility will be located in an area that is in attainment of NAAQS.

New Source Review for Non-Attainment Areas

Non-attainment Area NSR is the portion of NSR that applies to areas that are not in attainment of NAAQS. Northern Ada County is classified as a non-attainment/maintenance area for carbon monoxide. Therefore, new or modified air emission sources in northern Ada County are potentially subject to non-attainment area NSR for CO, depending on the proposed facility's major source status. Only major sources or major modifications to existing sources are subject to non-attainment area NSR.

A source is considered to be major if:

1. It is included in a list of 28 specific source categories and its potential to emit any of the NSR-regulated pollutants exceeds 100 tons per year (tpy), or
2. If its PTE exceeds 250 tpy for any other source category.

The list of 28 specific source categories with the 100 tpy threshold includes fossil-fuel boilers totaling more than 250 million BTU per hour heat input. However, wood waste is not defined as a fossil fuel. Fossil fuel is defined as natural gas, petroleum, coal, or any form of fuel derived from those materials (40 CFR 72.2). Therefore, the wood waste fired boiler proposed for this project is not included on the list of 28 source categories that are subject to a 100 tpy major source threshold. Additionally, none of the other operations that will be conducted onsite is included in the list of 28 specific source categories.

Therefore, the proposed facility could only be considered to be a major source if it has a potential to emit (PTE) greater than 250 tpy of any criteria pollutant. The proposed facility is not expected to have a PTE greater than 250 tpy for CO, NO_X, VOC, and PM_{10}, and is not considered a major PSD source. Therefore, the facility is not a major source and will not need to undergo a non-attainment area NSR. (See emission estimates in Appendix D).

New Source Review for Attainment or Unclassifiable Areas

Prevention of Significant Deterioration (PSD) is the portion of NSR that applies to pollutants that are in attainment of NAAQS, or are unclassifiable. Northern Ada County is classified as attainment or unclassifiable for the criteria pollutants NO_X, SO_2, ozone, lead, and PM_{10}. Therefore, new or modified air emission sources in northern Ada County are potentially subject to PSD review for these pollutants, depending on the proposed facility's major source status and on the emission rates of NO_X, SO_2, VOC, and PM_{10}.

The first step in PSD review is determining whether the proposed facility is a major source. As in the discussion above, the facility is not a major source and will not need to obtain a PSD permit prior to commencing construction. (See emission estimates in Appendix D.)

New Source Performance Standards - 40 CFR Part 60

There are no NSPS regulations that apply to fugitive particulate or VOC emissions from woodyard operations. Therefore, no NSPS regulations will apply to the sawmill.

National Emission Standards for Hazardous Air Pollutants - 40 CFR Part 63

Section 112 of the Clean Air Act (CAA) Amendments relates to the release of air toxic contaminants. The requirements of CAA Section 112(g) or (j) are not applicable because the facility is not a major source of hazardous air pollutants (HAP) (40 CFR 63.40(b)). Part 63 NESHAPS applies to major sources of HAP, defined as PTE > 10 tpy for any single HAP or PTE > 25 tpy for total HAP. HAP emissions from the facility will be below these threshold amounts.

Title V Operating Permit Program- 40 CFR Part 70

The CAA requires states to develop an operating permit program (40 CFR Part 70) for major sources. As described above, the Yamhill facility is not a major source.

Accidental Release Prevention Program- 40 CFR Part 68

The Yamhill facility will not use any chemicals that will make the facility subject to the Accidental Release Prevention Program.

Compliance Assurance Monitoring (CAM) - 40 CFR Part 64

The Yamhill facility will not be subject to the CAM rule.

IDAPA Regulations

IDAPA 58.01.01.123
CERTIFICATION OF DOCUMENTS

> "All documents, including but not limited to, application forms for permits to construct, application forms for operating permits, progress reports, records, monitoring data, supporting information, requests for confidential treatment, testing reports or compliance certifications submitted to the Department shall contain a certification by a responsible official. The certification shall state that,

based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete."

IDAPA 58.01.01.124
TRUTH, ACCURACY AND COMPLETENESS OF DOCUMENTS.

"All documents submitted to the Department shall be truthful, accurate and complete."

IDAPA 58.01.01.125
FALSE STATEMENTS

"No person shall knowingly make any false statement, representation, or certification in any form, notice, or report required under any permit, or any applicable rule or order in force pursuant thereto."

IDAPA 58.01.01.130
STARTUP, SHUTDOWN, SCHEDULED MAINTENANCE, SAFETY MEASURES, UPSET AND BREAKDOWN.

1. Wood Boiler
2. Saw Mill
3. Dry Kiln
4. Debarker/Debarker Screen
5. Log Processor Cyclones

If an excess emission event occurs during startup, shutdown, scheduled maintenance, safety measures, upset or breakdown, TVFP will comply with IDAPA 58.01.01.130 through 58.01.01.136.

In the event of an upset or breakdown of the Boiler, the malfunctioning unit would be immediately shut down. This includes any malfunction that could create excess emissions.

IDAPA 58.01.01.156
TOTAL COMPLIANCE

"Where more than one (1) section of these rules applies to a particular situation, all such rules must be met for total compliance, unless otherwise provided for in these rules."

IDAPA 58.01.01.157
TEST METHODS AND PROCEDURES

1. Wood Boiler

If an emission test is required, TVFP will adhere to procedures outlined in IDAPA 58.01.01.157.

IDAPA 58.01.01.161
TOXIC SUBSTANCES

1. Wood Boiler
2. Dry Kiln

> "Any contaminant which is by its nature toxic to human or animal life or vegetation shall not be emitted in such quantities or concentrations as to alone, or in combination with other contaminants, injure or unreasonably affect human or animal life or vegetation."

See emission estimates in Appendix D and modeling results in Appendix F.

IDAPA 58.01.01.200
PROCEDURES AND REQUIREMENTS FOR PERMITS TO CONSTRUCT

1. Wood Boiler
2. Saw Mill
3. Dry Kiln
4. Debarker/Debarker Screen
5. Log Processor Cyclones

TVFP will follow the procedures and requirements outlined under IDAPA 58.01.01.200 for obtaining a Permit to Construct.

IDAPA 58.01.01.210
DEMONSTRATION OF PRECONSTRUCTION COMPLIANCE WITH TOXIC STANDARDS

> "In accordance with Subsection 203.03, the applicant shall demonstrate preconstruction compliance with Section 161 to the satisfaction of the Department. The accuracy, completeness, execution and results of the demonstration are all subject to review and approval by the Department."

See emission calculations in Appendix D and modeling results in Appendix F.

IDAPA 58.01.01.213
PRE-PERMIT CONSTRUCTION

1. Wood Boiler
2. Saw Mill
3. Dry Kiln
4. Debarker/Debarker Screen
5. Log Processor Cyclones

TVFP will comply with procedures and regulations outlined in this section in order to obtain the 15-Day PTC.

IDAPA 58.01.01.213.02. Permit to Construct Procedures for Pre-Permit Construction

IDAPA 58.01.01.213.02.a Informational Meeting

"Within ten (10) days after the submittal of the pre-permit construction approval application, the owner or operator shall hold an informational meeting in at least one (1) location in the region in which the stationary source or facility is to be located. The informational meeting shall be made known by notice published at least ten (10) days before the meeting in a newspaper of general circulation in the county(ies) in which the stationary source or facility is to be located. A copy of such notice shall be included in the application."

A copy of the Public Notice is provided in Appendix A.

IDAPA 58.01.01.220 General Exemption Criteria For Permit to Construct Exemptions

IDAPA 58.01.01.221 Category I Exemption

"No permit to construct is required for a source that satisfies the criteria set forth in Section 220 and the following:"

IDAPA 58.01.01.221.01 Below Regulatory Concern.

"The maximum capacity of a source to emit an air pollutant under its physical and operational design considering limitations on emissions such as air pollution control equipment, restrictions on hours of operation and restrictions on the type and amount of material combusted, stored or processed shall be less than ten percent (10%) of the significant emission rates set out in the definition of significant at Section 006."

IDAPA 58.01.01.300 PROCEDURES AND REQUIREMENTS FOR TIER I OPERATING PERMITS

"The purposes of Sections 300 through 399 are to establish requirements and procedures for the issuance of Tier I operating permits."

Not applicable. TVFP will be classified as a minor source facility with total potential emissions less than 100 tons per year.

IDAPA 58.01.01.577
AMBIENT AIR QUALITY STANDARDS FOR SPECIFIC AIR POLLUTANTS (PM-10, SOx, NOx, CO, Pb)

IDAPA 58.01.01.577.01 **PM-10 Standards**

1. Wood Boiler
2. Saw Mill
3. Dry Kiln
4. Debarker/Debarker Screen
5. Log Processor Cyclones

IDAPA 58.01.01.577.01.a Primary and Secondary Standards

IDAPA 58.01.01.577.01.a.i Annual Standard

"Fifty (50) micrograms per cubic meter, as an annual arithmetic mean -- never expected to be exceeded in any calendar year."

IDAPA 58.01.01.577.01.a.ii 24-hr Standard
"One hundred fifty (150) micrograms per cubic meter as a maximum twenty-four (24) hour concentration -- never expected to be exceeded more than once in any calendar year."

IDAPA 58.01.01.577.02 **Sulfur Oxides (Sulfur Dioxide)**
1. Wood Boiler

IDAPA 58.01.01.577.02.a Primary Standards

IDAPA 58.01.01.577.02.a.i Annual Standard
"Eighty (80) micrograms per cubic meter (0.03 ppm), as an annual arithmetic mean -- not to be exceeded in any calendar year."

IDAPA 58.01.01.577.02.a.ii 24-hr Standard
"Three hundred sixty-five (365) micrograms per cubic meter (0.14 ppm), as an maximum twenty-four (24) hour concentration -- not to be exceeded more than once in any calendar year."

IDAPA 58.01.01.577.02.b Secondary Standard
"Secondary air quality standards are one thousand three hundred (1,300) micrograms per cubic meter (0.50 ppm), as a maximum three (3) hour concentration -- not to be exceeded more than once in any calendar year."

IDAPA 58.01.01.577.04 **Nitrogen Dioxide**

1. Wood Boiler
"Primary and secondary air quality standards are one hundred (100) micrograms per cubic meter (0.05 ppm) -- annual arithmetic mean."

IDAPA 58.01.01.577.05 **Carbon Monoxide Primary and Secondary Standards**

1. Wood Boiler
IDAPA 58.01.01.577.01.a
"Eight (8) Hour Standard. Ten (10) milligrams per cubic meter (9 ppm) -- maximum eight (8) hour concentration not to be exceeded more than once per year."

IDAPA 58.01.01.577.01.b
"One (1) Hour Standard. Forty (40) milligrams per cubic meter (35 ppm) -- maximum one (1) hour concentration not to be exceeded more than once per year."

IDAPA 58.01.01.577.7 **Lead**

1. Wood Boiler
"Primary and secondary standards for lead and its compounds, measured as elemental lead, are one and one-half (1.5) micrograms per cubic meter (1.5 ug/m3), as a quarterly arithmetic mean -- not to be exceeded in any quarter of any calendar year."

IDAPA 58.01.01.578
DESIGNATION OF ATTAINMENT, UNCLASSIFIABLE, AND NONATTAINMENT AREAS

1. Wood Boiler
2. Saw Mill
3. Dry Kiln
4. Debarker/Debarker Screen
5. Log Processor Cyclones

Northern Ada County is designated as attainment for CO and PM_{10} and unclassifiable for SO_2, NO_x, ozone, and lead. There are no Class I areas within 10 kilometers of the facility.

IDAPA 58.01.01.590
NEW SOURCE PERFORMANCE STANDARDS

1. Wood Boiler
2. Saw Mill
3. Dry Kiln
4. Debarker/Debarker Screen
5. Log Processor Cyclones

The proposed sources are not applicable under 40 CFR Part 60 – see compliance review in the federal summary.

IDAPA 58.01.01.591
NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

1. Wood Boiler
2. Saw Mill
3. Dry Kiln
4. Debarker/Debarker Screen
5. Log Processor Cyclones

The proposed sources are not regulated under 40 CFR Part 61 and 40 CFR Part 63, since the TVFP facility is below threshold limits.

IDAPA 58.01.01.625
VISIBLE EMISSIONS

1. Wood Boiler
2. Saw Mill
3. Dry Kiln
4. Debarker/Debarker Screen
5. Log Processor Cyclones

"A person shall not discharge any air pollutant into the atmosphere from any point of emission for a period or periods aggregating more than three (3) minutes in any sixty (60) minute period which is greater than twenty percent (20%) opacity as determined by this section."

It is proposed that TVFP conduct a monthly inspection of the wood boiler stack, sawmill, dry kiln, debarker, debarker screen, and log processor cyclones. The inspection will be conducted during daylight hours and under normal operating conditions. The inspection will consist of a see/no see evaluation. If any visible emissions are present from the point of emission, appropriate corrective action will be taken as expeditiously as practicable, or a Method 9 opacity test, in accordance with the procedures outlined in IDAPA 58.01.01.625, will be performed. Records of the results of each monthly visible emission inspection and each opacity test, when conducted, will be maintained. The records will include, at a minimum, the date and results of each inspection and test, and a description of the following: the assessment of the conditions existing at the time visible emissions are present (if observed), any corrective action taken in response to the visible emissions, and the date corrective action was taken.

IDAPA 58.01.01.650
RULES FOR CONTROL OF FUGITIVE DUST

1. Material Handling (for example, truck unloading bins, chip bins, sawdust bins, and sawdust piles)

TVFP will take all reasonable precautions to prevent the generation of fugitive dust as outlined under IDAPA 58.01.01.650-651.

IDAPA 58.01.01.651
GENERAL RULES

1. Material Handling (for example, truck unloading bins, chip bins, sawdust bins, and sawdust piles)

"All reasonable precautions shall be taken to prevent particulate matter from becoming airborne. In determining what is reasonable, consideration will be given to factors such as the proximity of dust emitting operations to human habitations and/or activities and atmospheric conditions which might affect the movement of particulate matter. Some of the reasonable precautions may include, but are not limited to, the following:"

IDAPA 58.01.01.651.01 Use Of Water or Chemicals
"Use, where practical, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads, or the clearing of land."

IDAPA 58.01.01.651.02 Application Of Dust Suppressants
"Application, where practical, of asphalt, oil, water or suitable chemicals to, or covering of dirt roads, material stockpiles, and other surfaces which can create dust."

IDAPA 58.01.01.651.03 Use Of Control Equipment
"Installation and use, where practical, of hoods, fans and fabric filters or equivalent systems to enclose and vent the handling of dusty materials. Adequate containment methods should be employed during sandblasting or other operations."

IDAPA 58.01.01.651.04 Covering Of Trucks
"Covering, when practical, open bodied trucks transporting materials likely to give rise to airborne dusts."

IDAPA 58.01.01.651.05 Paving
"Paving of roadways and their maintenance in a clean condition, where practical."

IDAPA 58.01.01.651.06 Removal Of Materials
"Prompt removal of earth or other stored material from streets, where practical."

TVFP will monitor and maintain records of the frequency and the method(s) used (as an example water) to reasonably control fugitive emissions. A monthly facility-wide inspection will be conducted of the sources of fugitive emissions during daylight hours and under normal operating conditions to ensure that the methods used to reasonably control fugitive emissions are effective. If fugitive emissions are not being reasonably controlled, TVFP will undertake corrective action as expeditiously as practicable. Records of the results of each monthly fugitive emissions inspection will be maintained. The records will include, at a minimum, the date of each inspection and a description of the following: the facilities assessment of the conditions existing at the time fugitive emissions were present (if observed), any corrective action taken in response to the fugitive emissions, and the date the corrective action was taken.

Records will be maintained of all fugitive dust complaints received. Appropriate corrective action will be taken as expeditiously as practicable after receipt of a valid complaint. The records will include, at a minimum, the date that each complaint was received and a description of the following: the complaint, the facilities assessment of the validity of the complaint, any corrective action taken, and the date the corrective action was taken.

IDAPA 58.01.01.675
FUEL BURNING EQUIPMENT -- PARTICULATE MATTER

1. Wood Boiler

TFVP will adhere to guidelines under IDAPA 58.01.01.675 through IDAPA 58.01.01.681 with regards to particulate emissions for fuel burning equipment.

IDAPA 58.01.01.676
STANDARDS FOR NEW SOURCES

1. Wood Boiler

"A person shall not discharge into the atmosphere from any fuel burning equipment with a maximum rated input of ten (10) million BTU's per hour or

more, and commencing operation on or after October 1, 1979, particulate matter in excess of the concentrations shown in the following table:"

Fuel Type	Allowable Particulate gr/dscf	Emissions Oxygen
Wood	0.08	8%

This standard does not apply to the TVFP wood boiler because the maximum heat input rating is less than one million BTU per hour.

IDAPA 58.01.01.700
PARTICULATE MATTER -- PROCESS WEIGHT LIMITATIONS

1. Saw Mill
2. Debarker/Debarker Screen
3. Log Processor Cyclones

TVFP will limit the sources above to comply with process weight limitations outlined under IDAPA 58.01.01.700 through IDAPA 58.01.01.703.

IDAPA 58.01.01.700.02 Minimum Allowable Emission
"Notwithstanding the provisions of Sections 701 and 702, no source shall be required to meet an emission limit of less than one (1) pound per hour."

IDAPA 58.01.01.700.03.b Averaging Period – Worst Case
"One (1) hour of operation representing worst-case conditions for the emissions of particulate matter."

IDAPA 58.01.01.701
PARTICULATE MATTER -- NEW EQUIPMENT PROCESS WEIGHT LIMITATIONS

1. Saw Mill
2. Debarker/Debarker Screen
3. Log Processor Cyclones

IDAPA 58.01.01.701.01 General Restrictions
"No person shall emit into the atmosphere from any process or process equipment commencing operation on or after October 1, 1979, particulate matter in excess of the amount shown by the following equations, where E is the allowable emission from the entire source in pounds per hour, and PW is the process weight in pounds per hour."

IDAPA 58.01.01.701.01.a PW less than 9,250 pounds per hour
$E = 0.045(PW)0.60$

IDAPA 58.01.01.701.01.b PW greater than 9,250 pounds per hour
$E = 1.10(PW)0.25$

The PM process weight limitations comply with the applicable IDAPA standard. See Table 1 – IDAPA Rule 701.

IDAPA 58.01.01.775
RULES FOR CONTROL OF ODORS

TVFP will follow the guidelines set under IDAPA 58.01.01.775 through IDAPA 58.01.01.776 to control odorous emissions from all sources for which no gaseous emission control rules apply.

IDAPA 58.01.01.776
GENERAL RULES

IDAPA 58.01.01.776.01 General Restrictions
"No person shall allow, suffer, cause or permit the emission of odorous gases, liquids or solids into the atmosphere in such quantities as to cause air pollution."

Table 1 – IDAPA Rule 701

Treasure Valley Forest Products - Lodge Logs

Table 1 Compliance with IDAPA Rule 701 PM Standard for Process Weight							
Unit	Sawmill	Debarker	Debarker Screen	Green Cyclone	A Cyclone	B Cyclone	Pole Cyclone
Process Weight (lb/hr)	11,863	12,852	12,852	9,869	987	147	959
PM Emission Rate (lb/hr)	1.58	0.15	0.15	2.47	0.25	0.04	0.24
Compliance with Allowable Emission Calculation							
Calculated Allowable Emissions (E) (lb/hr) [1]	12.52	11.71	11.71	10.96	2.82	0.90	2.77
Compliance w/ PM Loading Standard	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

General Restrictions - New Equipment:

If PW is less than 9,250 pounds per hour
$E = 0.045(PW)^{0.6}$

If PW is greater than 9,250 pounds per hour
$E = 1.10(PW)^{0.25}$